

1/55

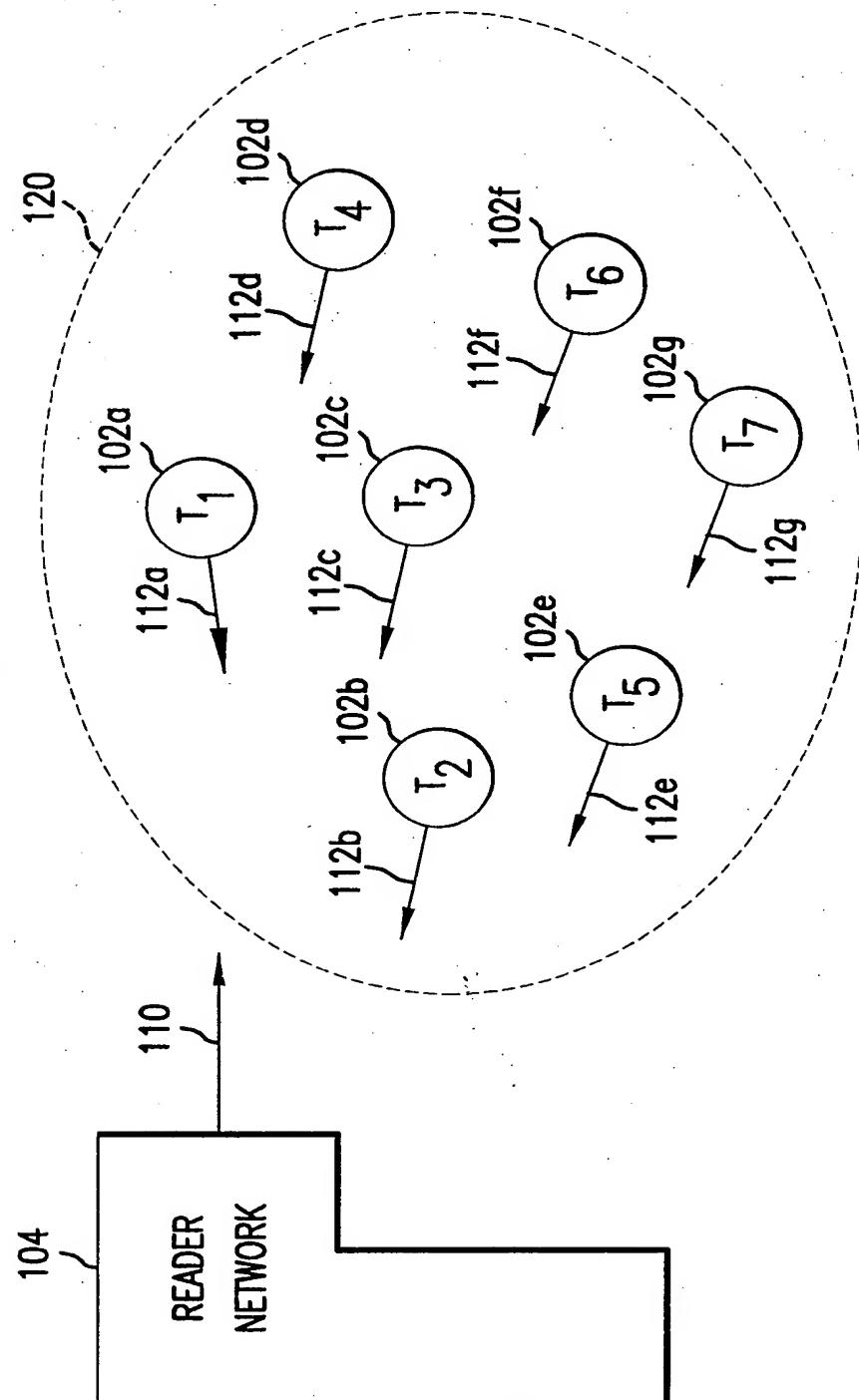
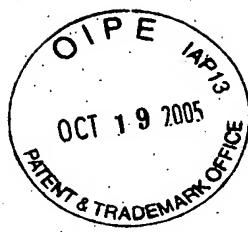


FIG. 1



READER NETWORK/SITE

2/55

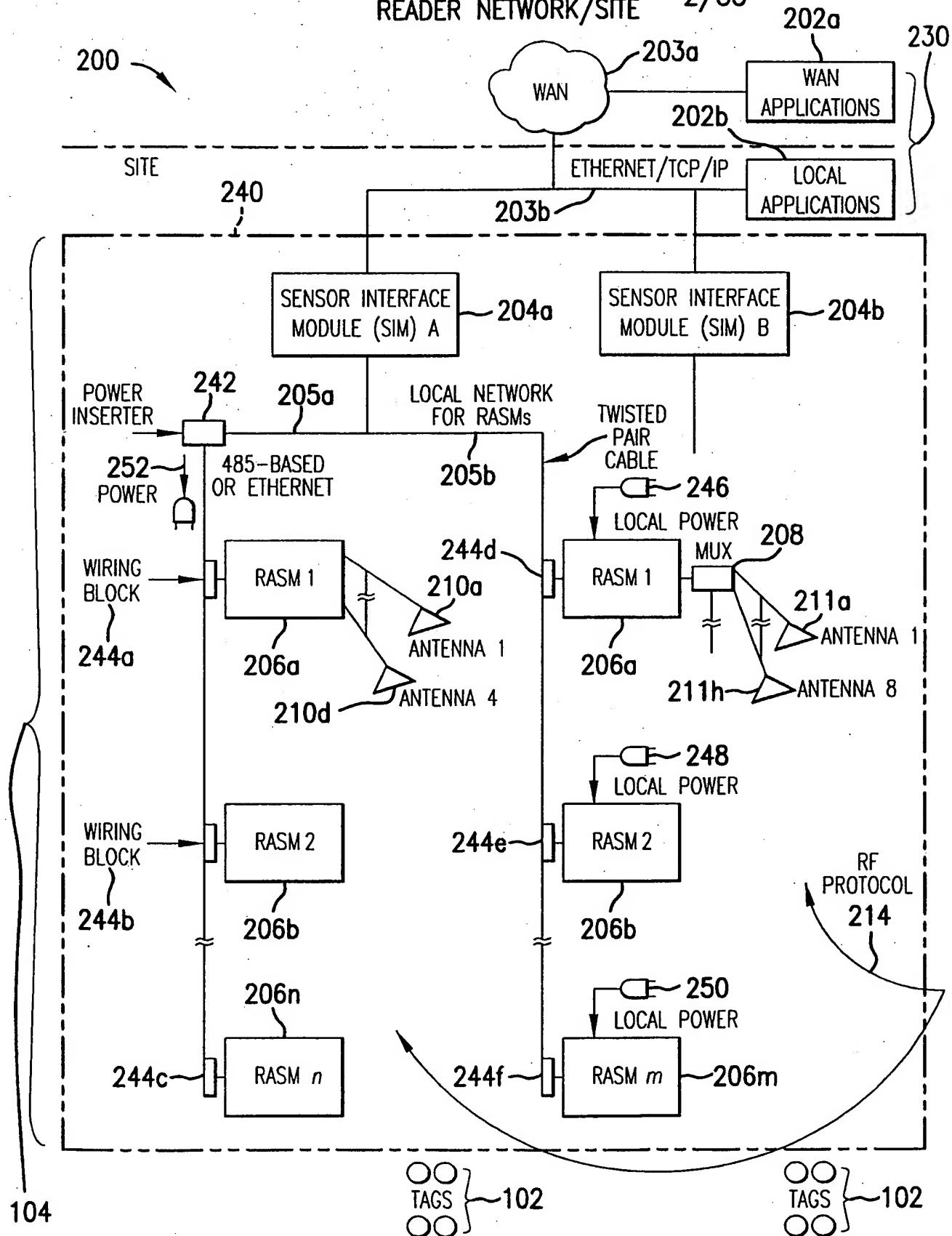


FIG. 2

3/55

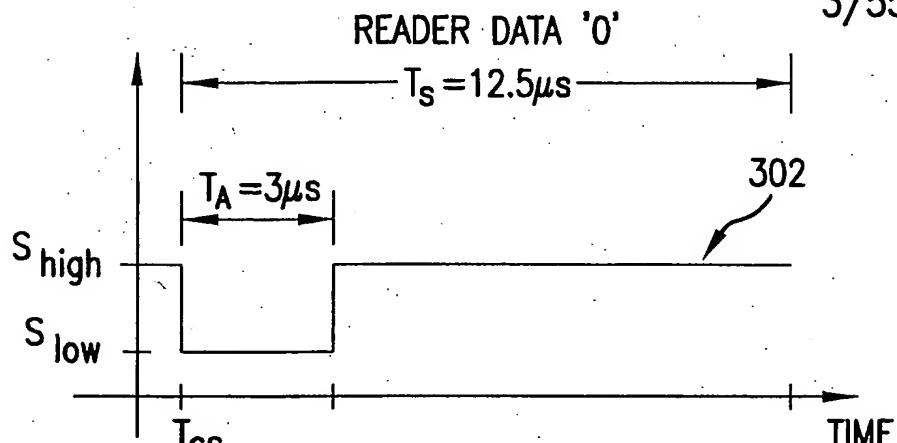


FIG. 3

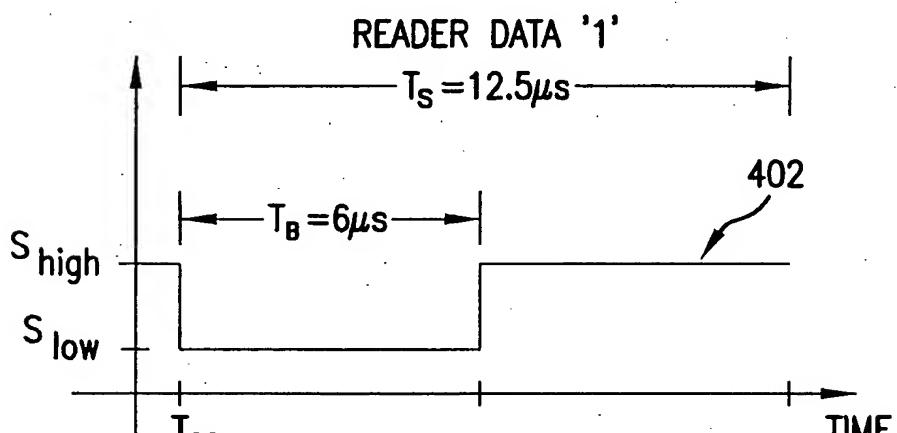


FIG. 4

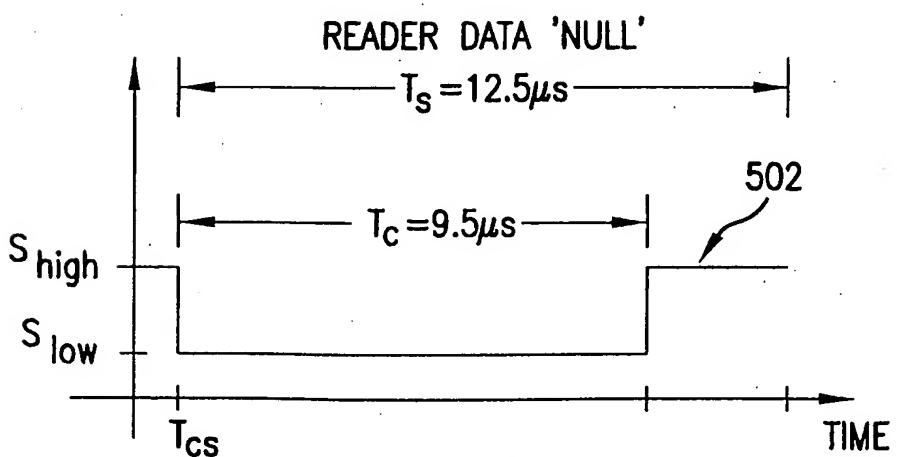


FIG. 5

4/55

READER BIT '0' WITH TAG BIT '0'

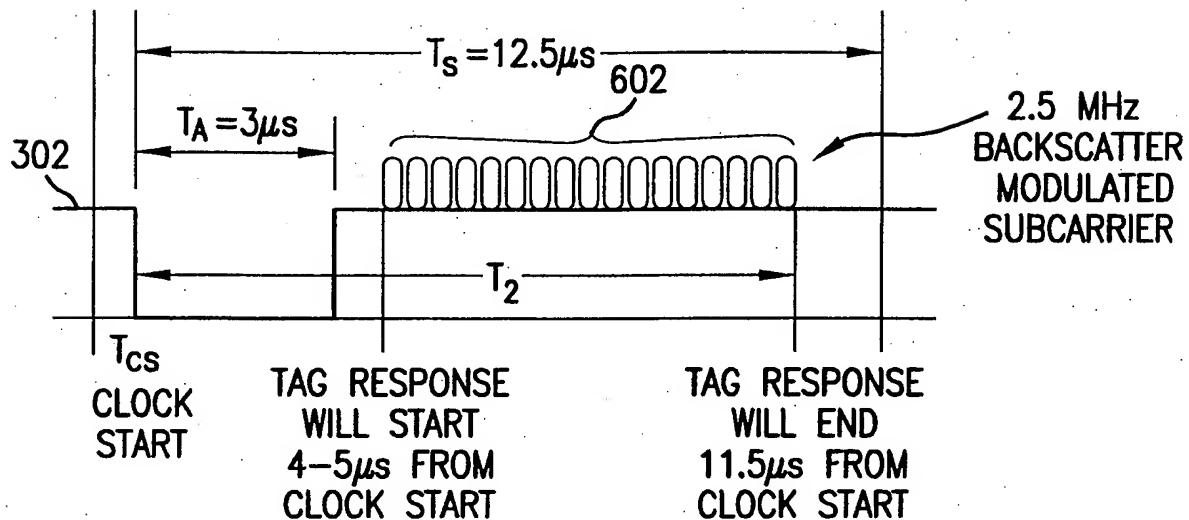


FIG. 6

READER BIT '1' WITH TAG BIT '0'

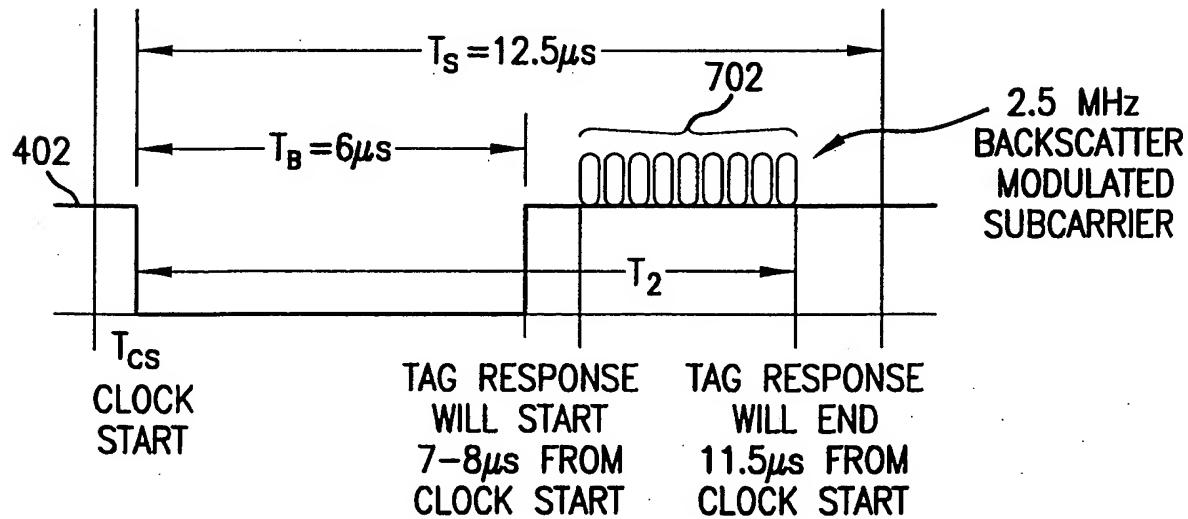


FIG. 7

5/55

READER BIT '0' WITH TAG BIT '1'

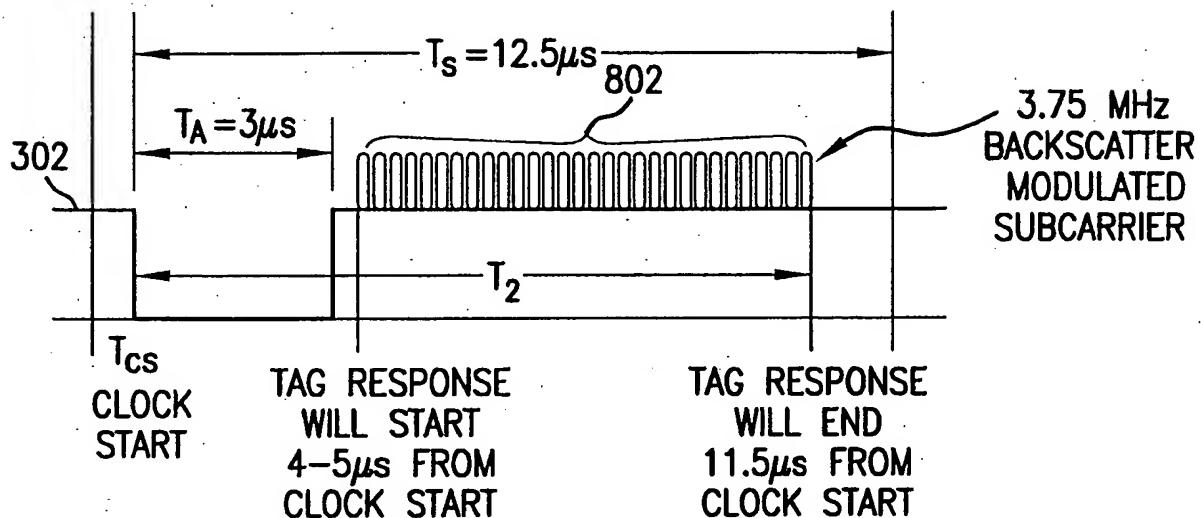


FIG. 8

READER BIT '1' WITH TAG BIT '1'

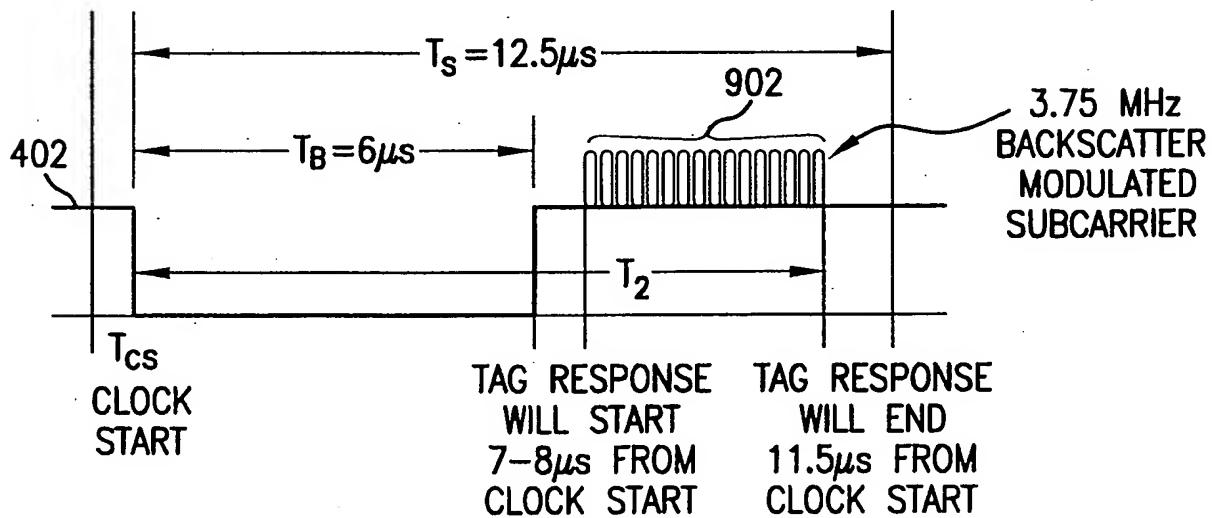
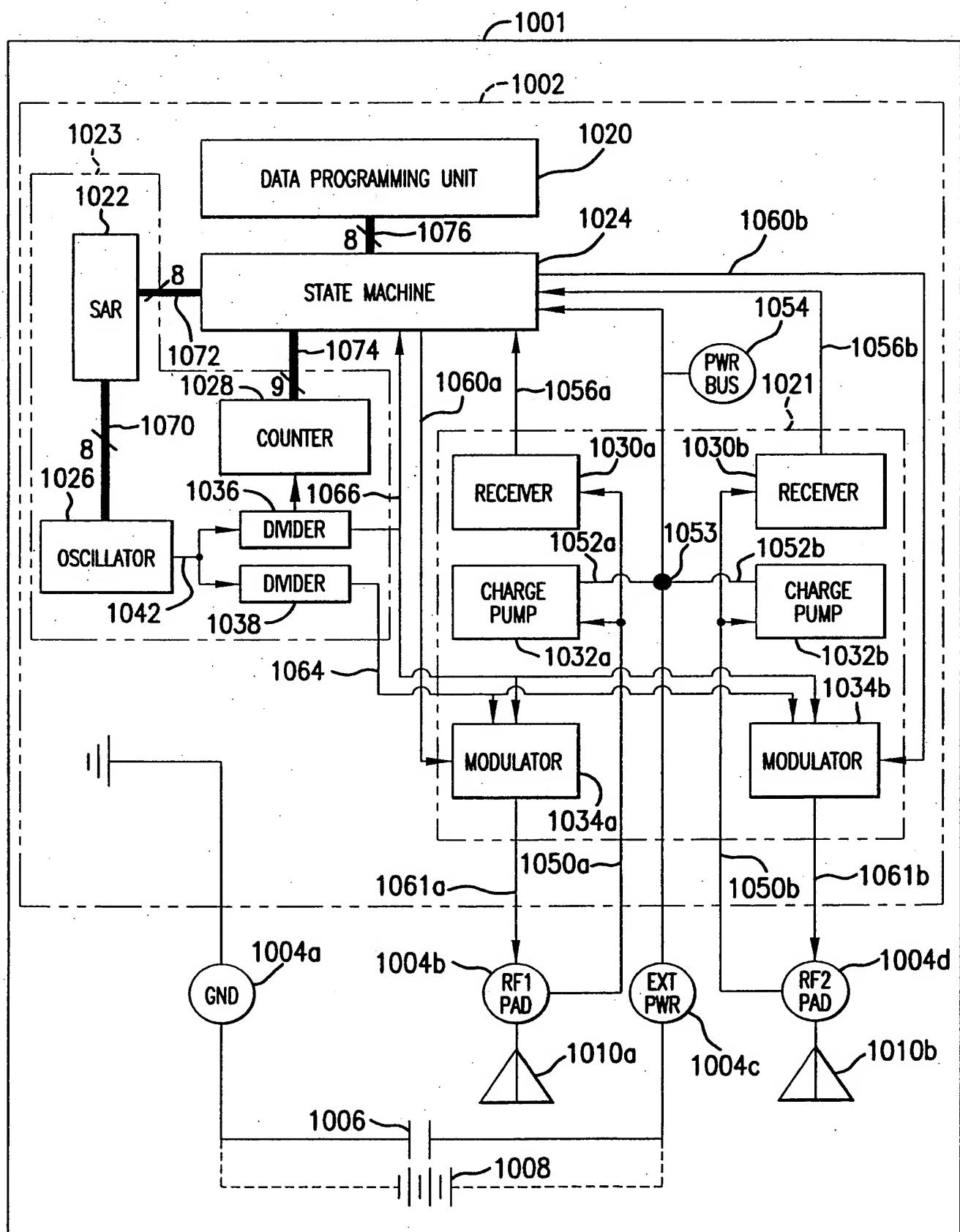


FIG. 9

6/55



7/55

1001

1002

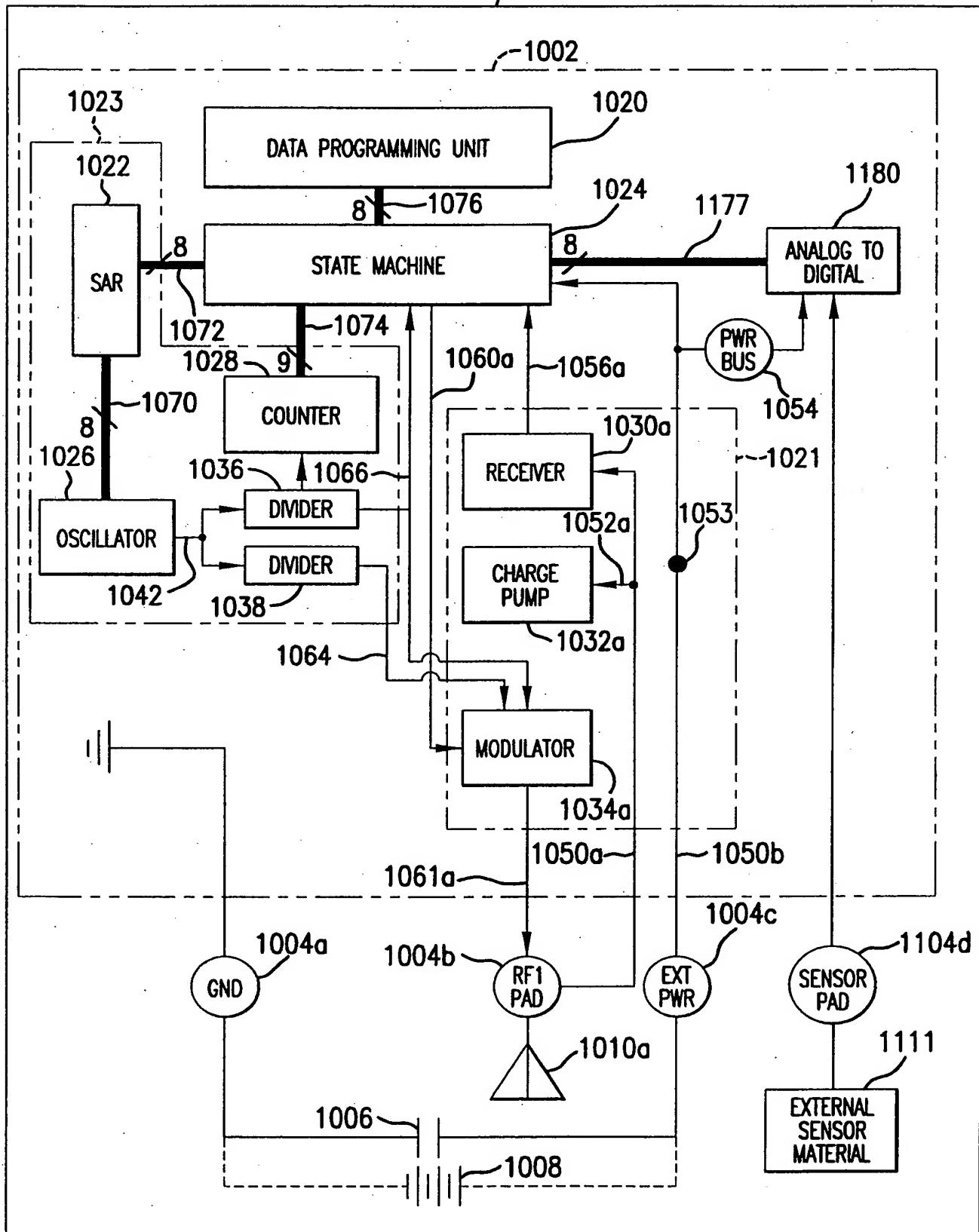
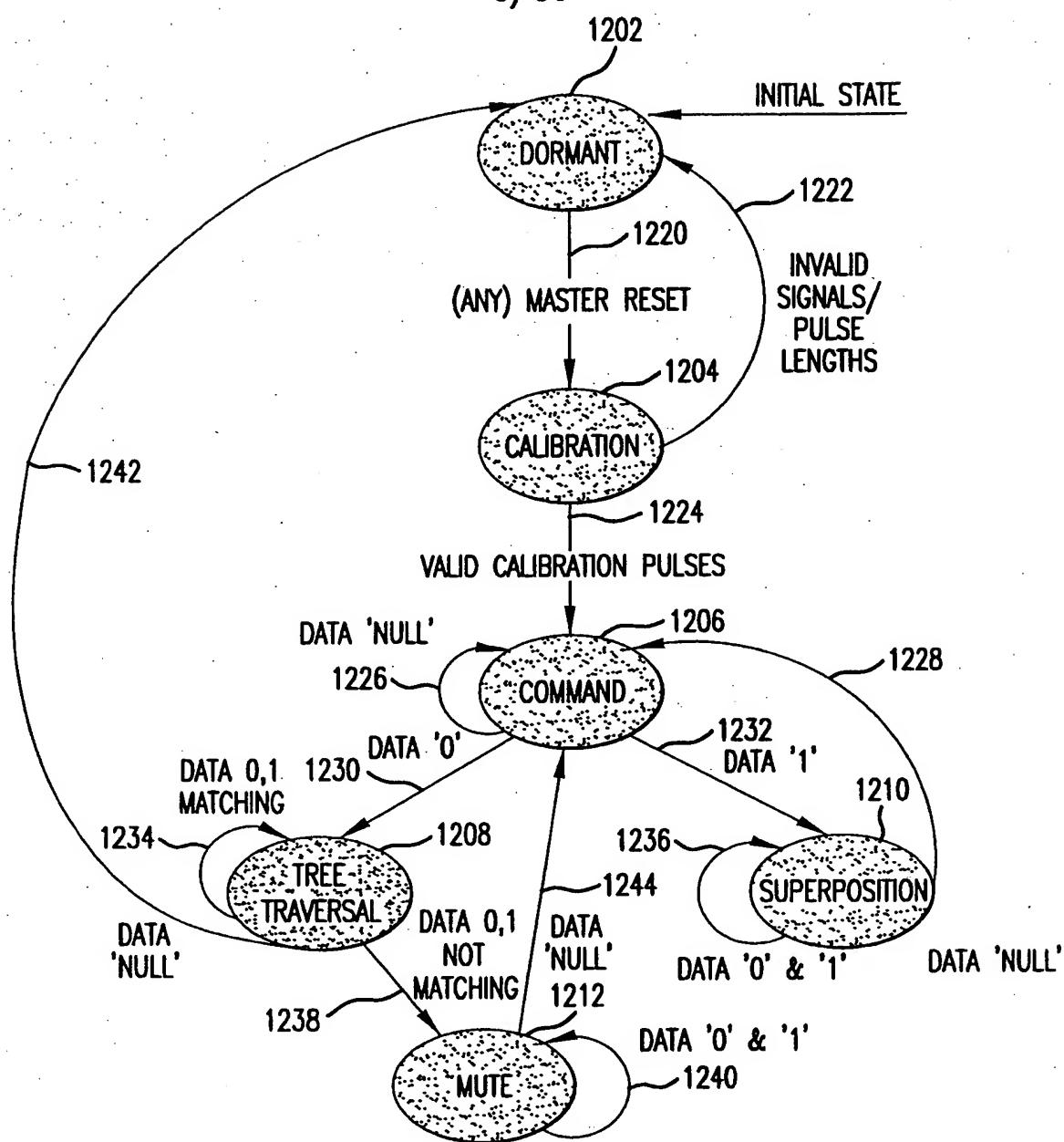


FIG. 11

8/55



1202, 1204, 1206,
1208, 1210, 1212

1202, 1204, 1206,
1208, 1210, 1212

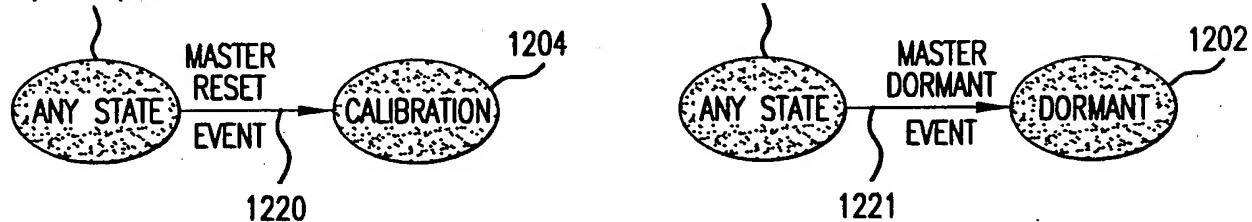


FIG. 12A

9/55

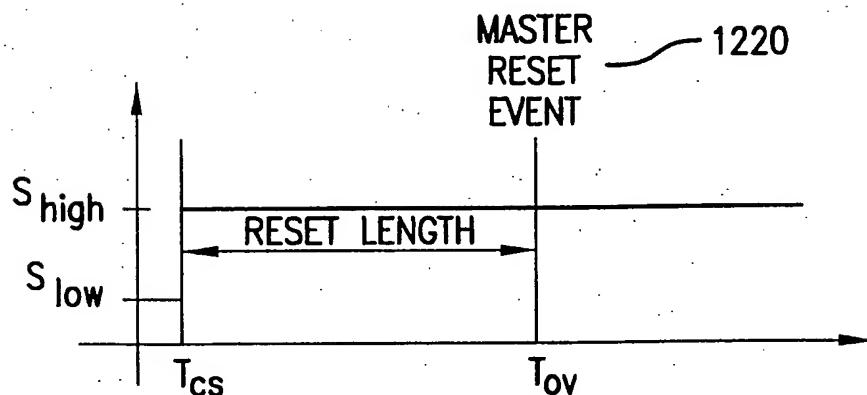


FIG. 12B

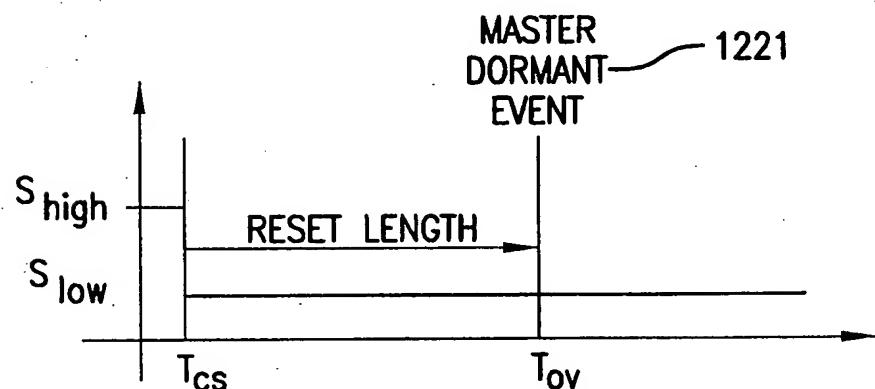


FIG. 12C

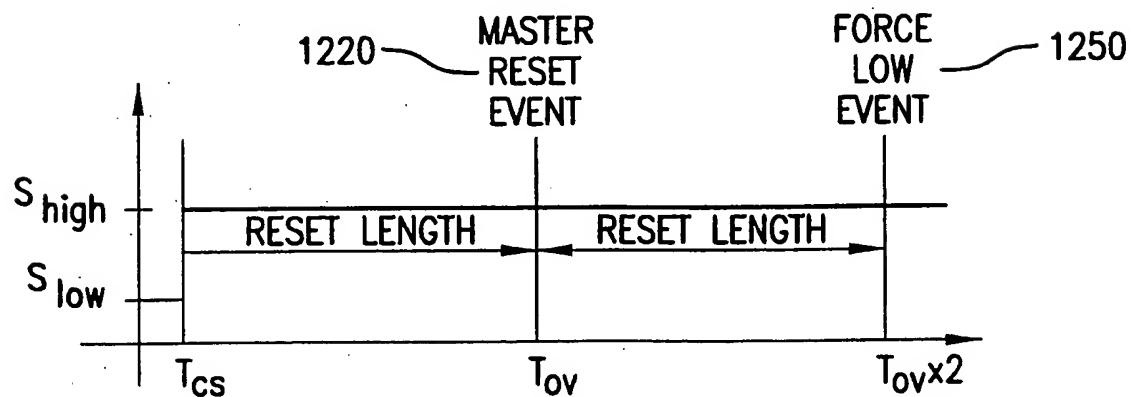
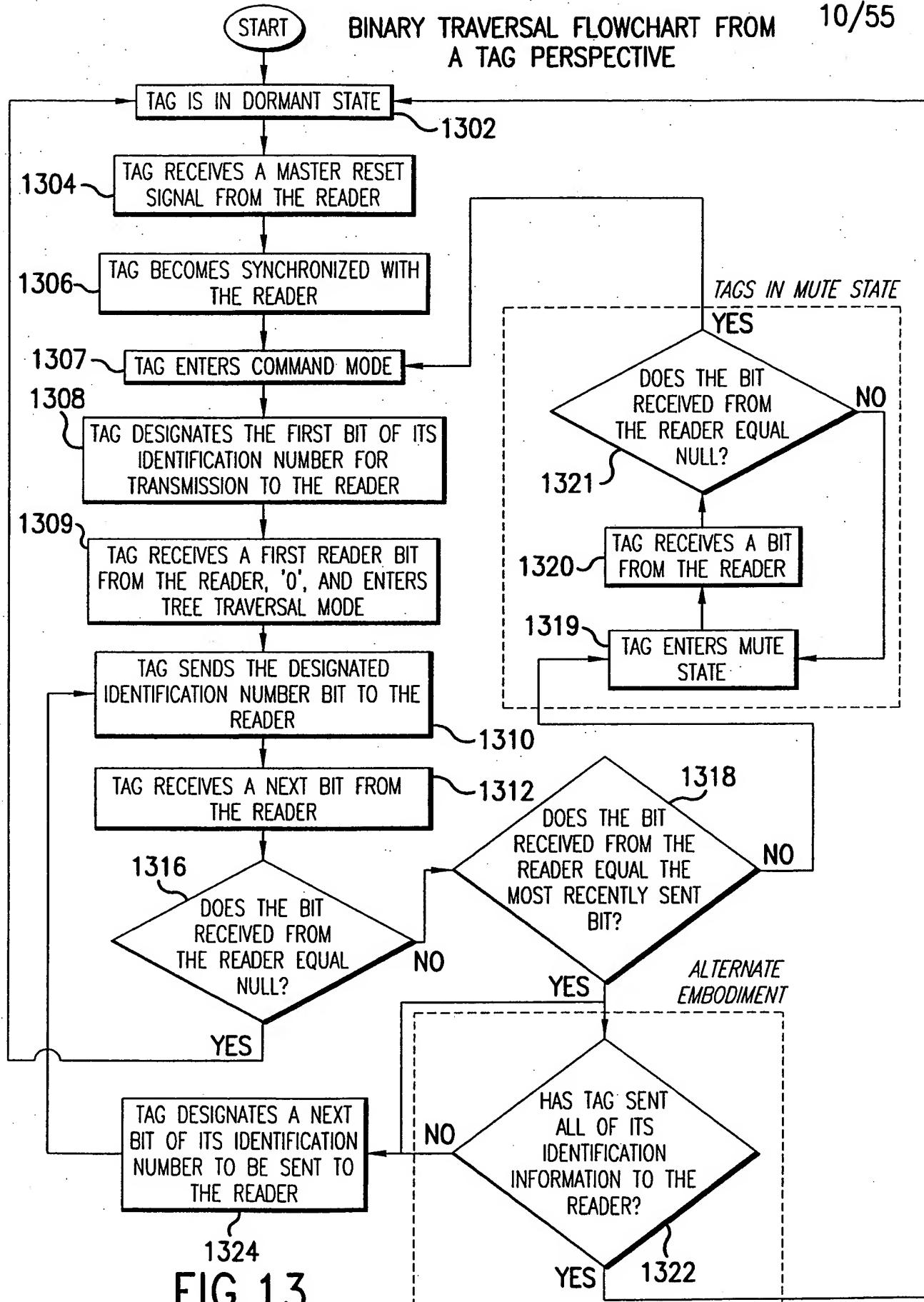


FIG. 12D

10/55



READ SPECIFIC TAG, READER PERSPECTIVE

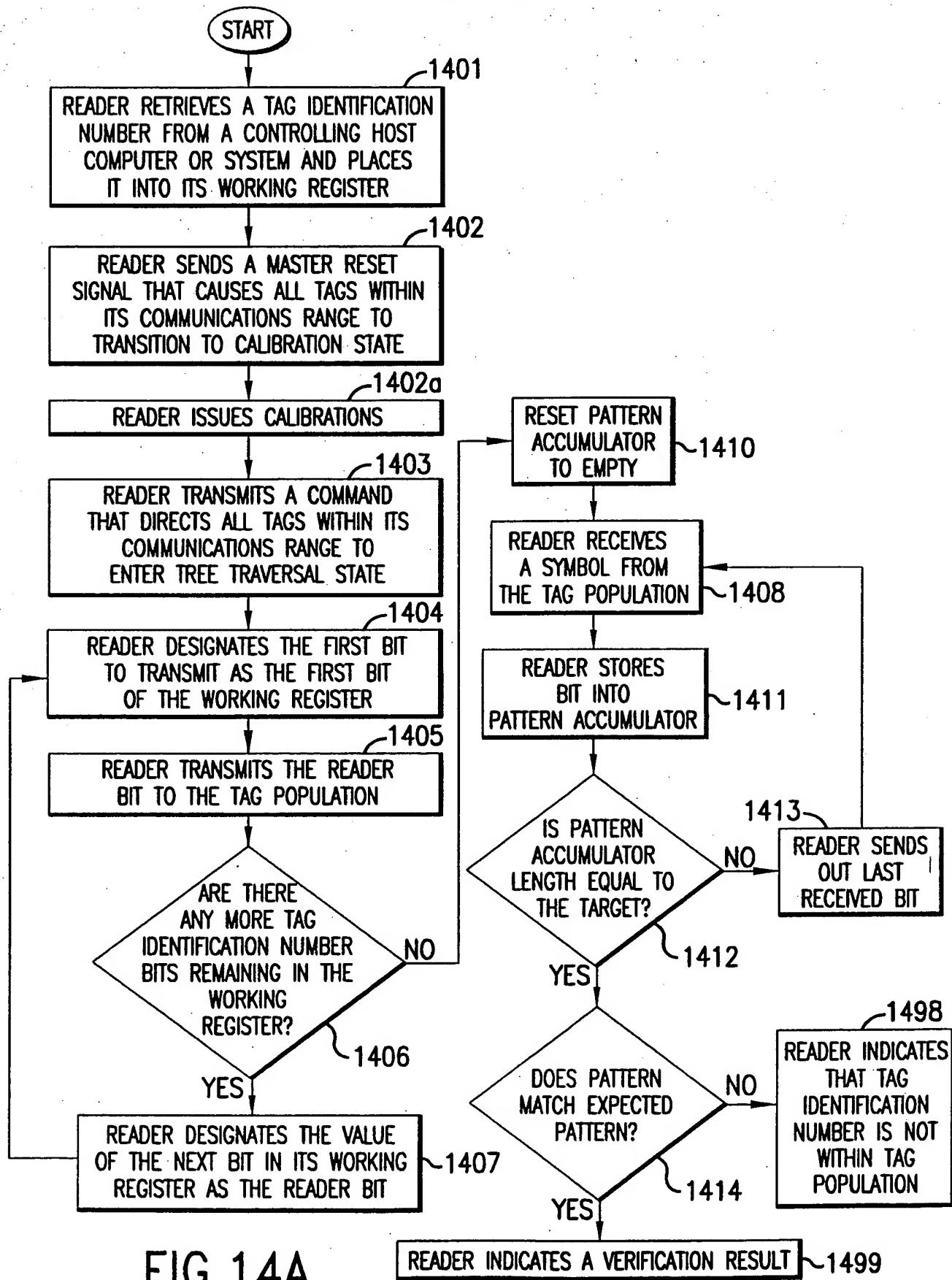


FIG.14A

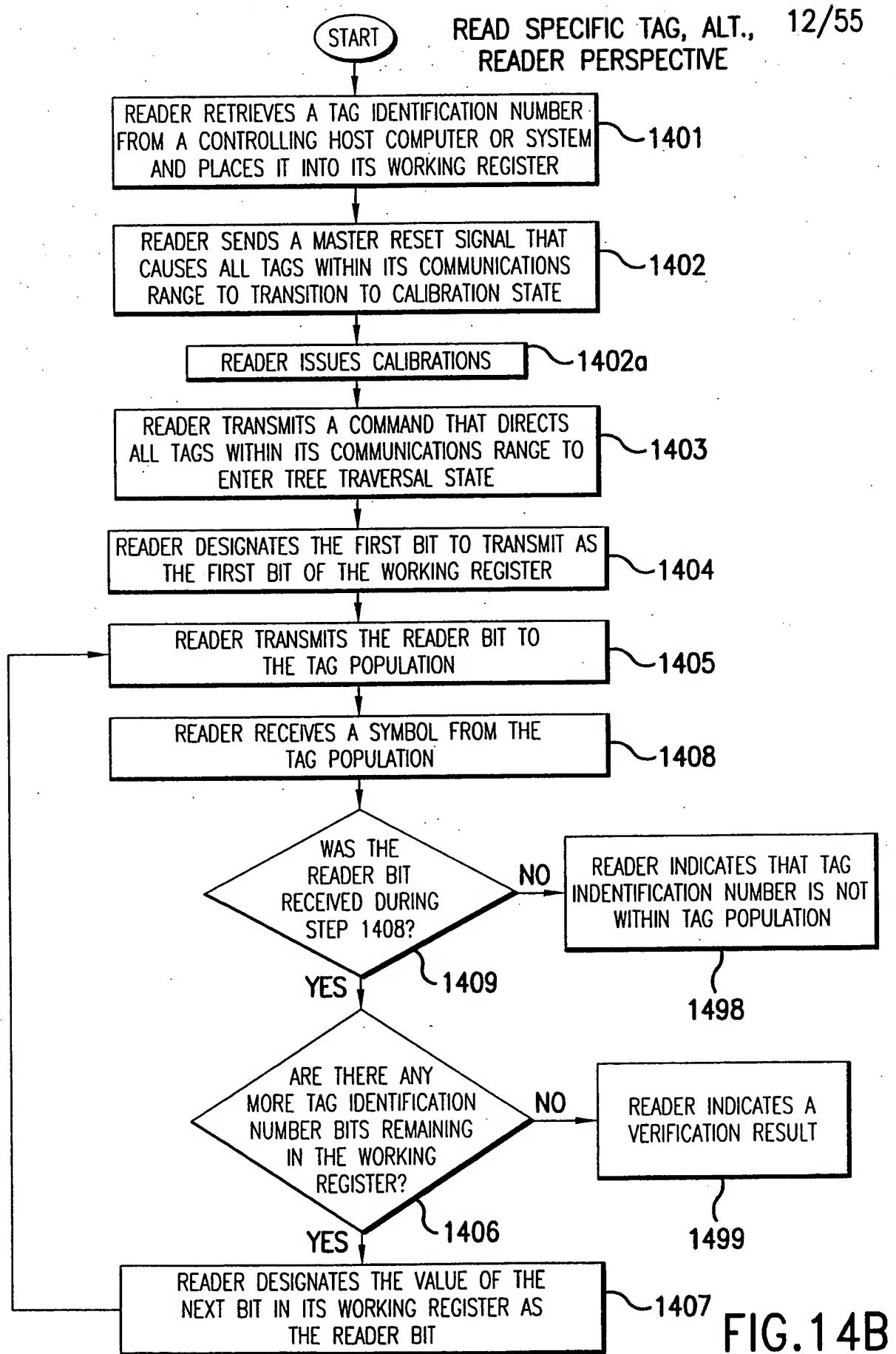


FIG.14B

13/55

READ ALL TAGS, READER PERSPECTIVES

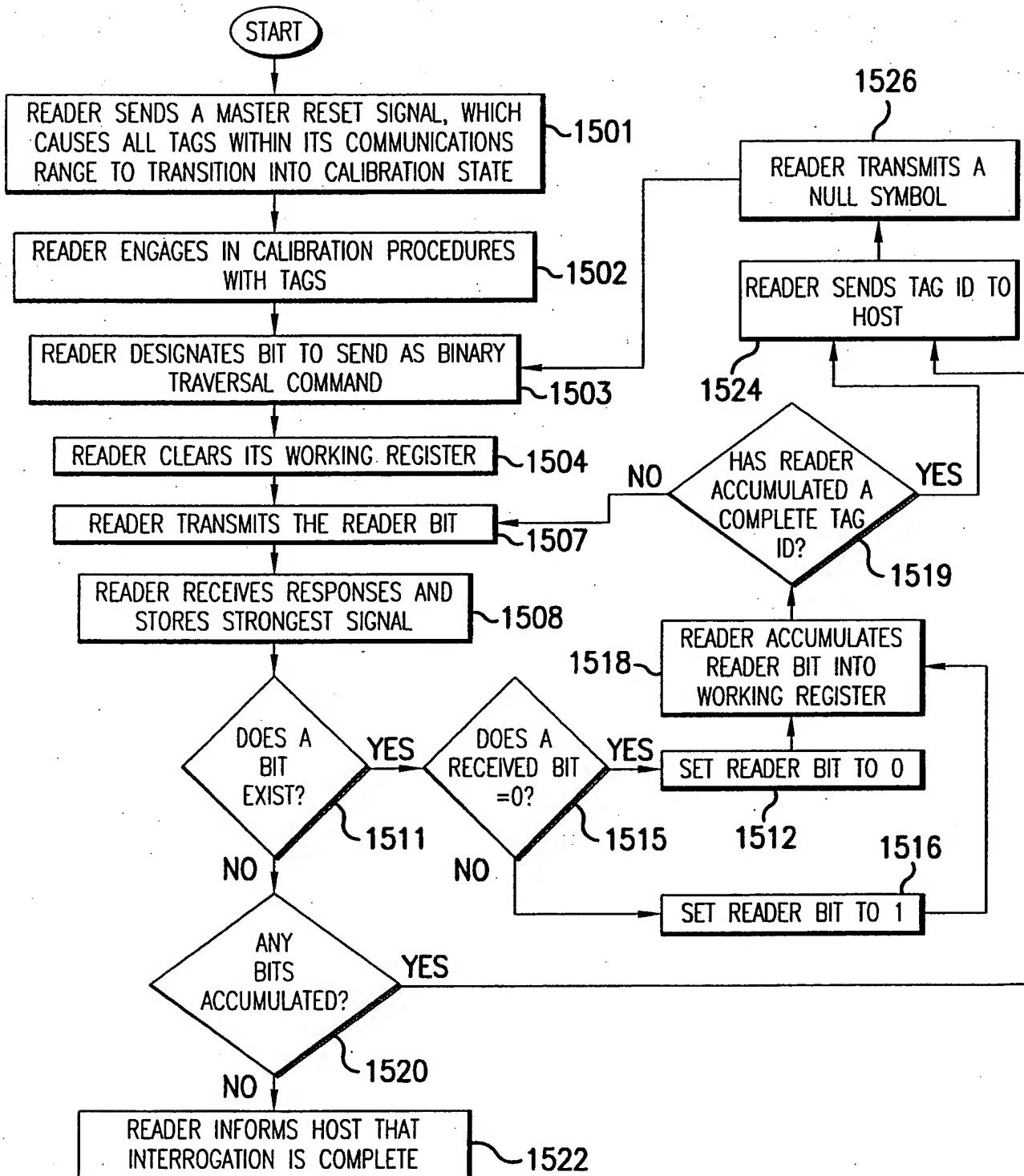


FIG.15A

14/55

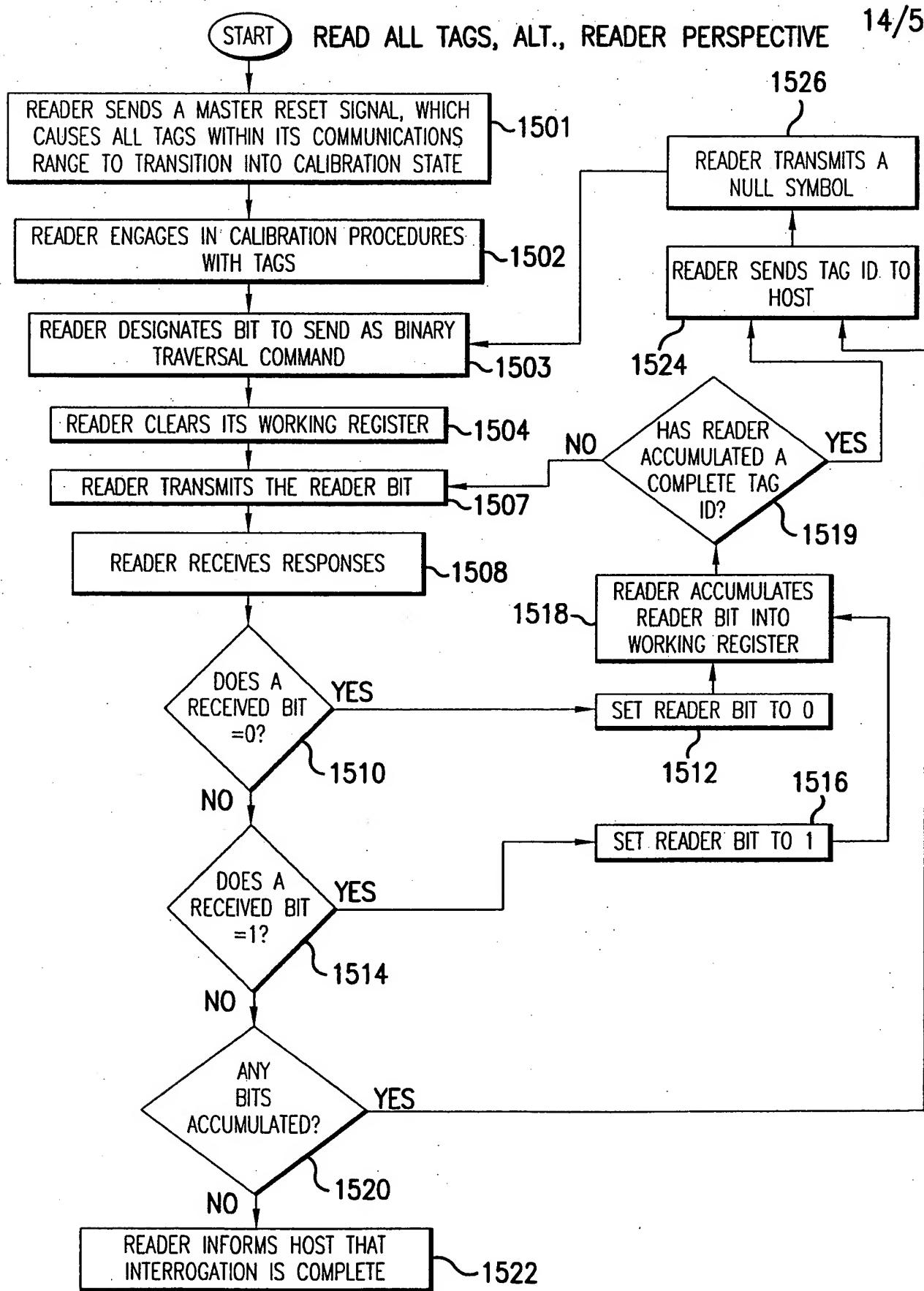


FIG.15B

15/55

BINARY TRAVERAL PATHS AND TREE FOR A 3-BIT TAG POPULATION

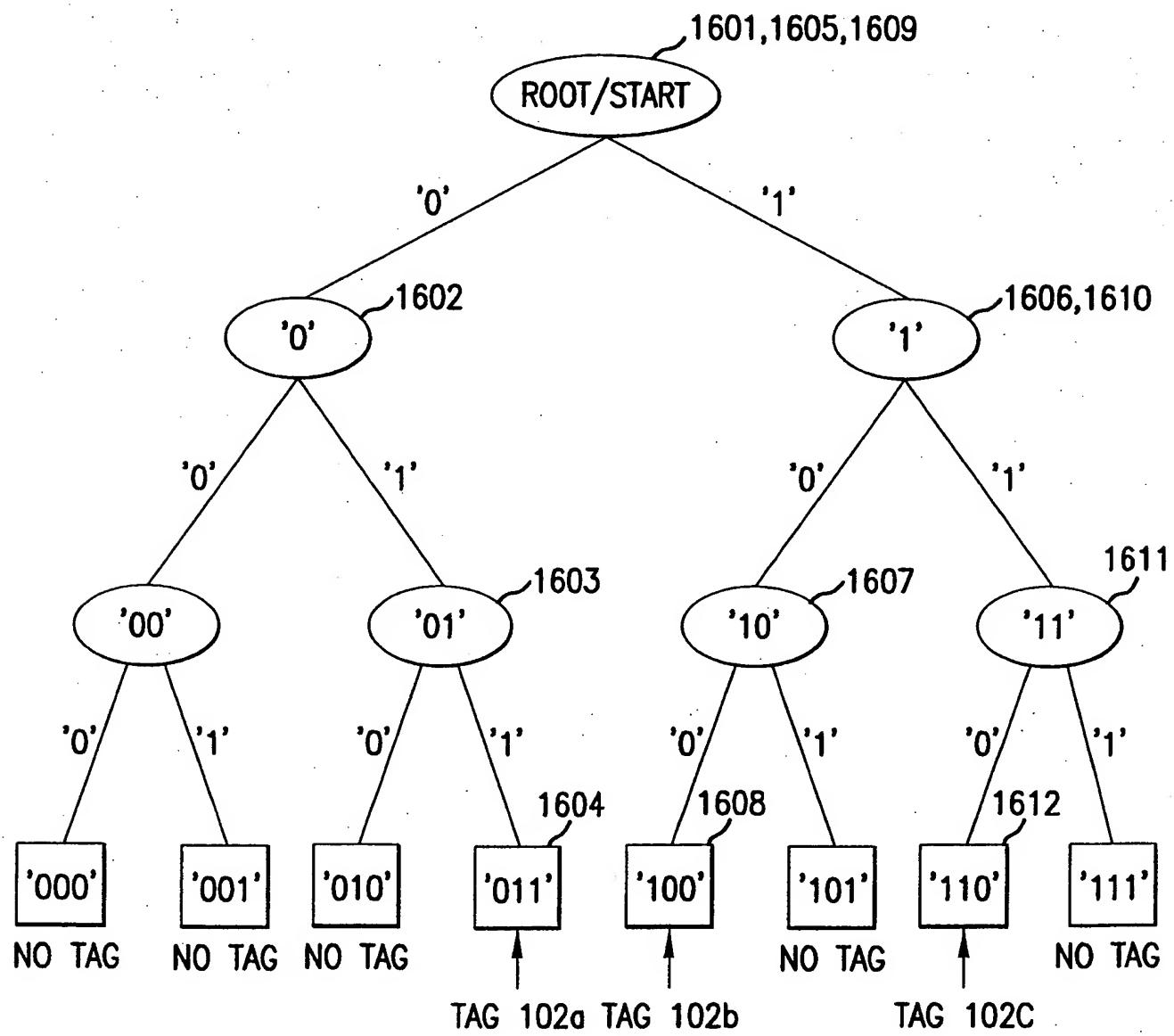


FIG. 16

16/55

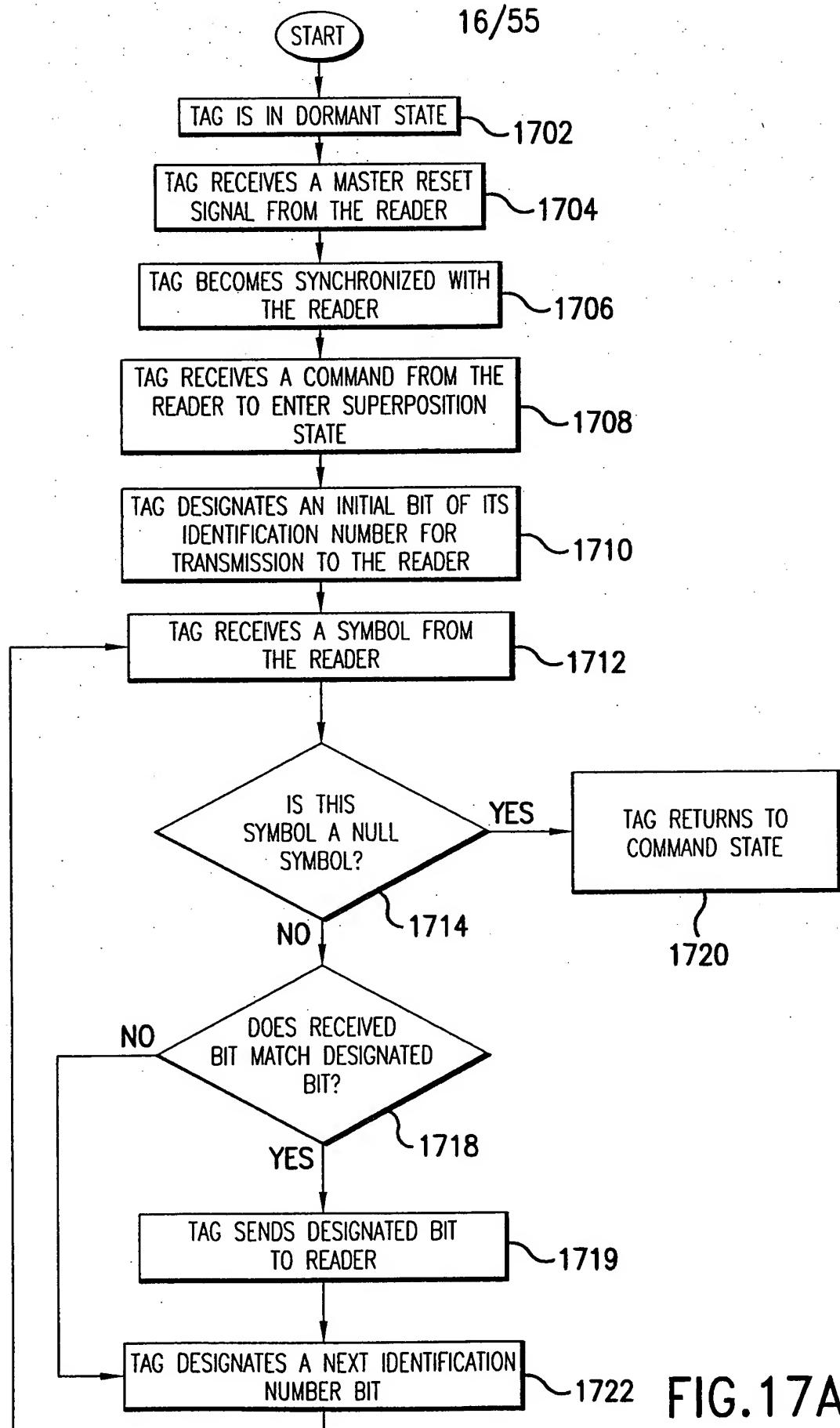


FIG.17A

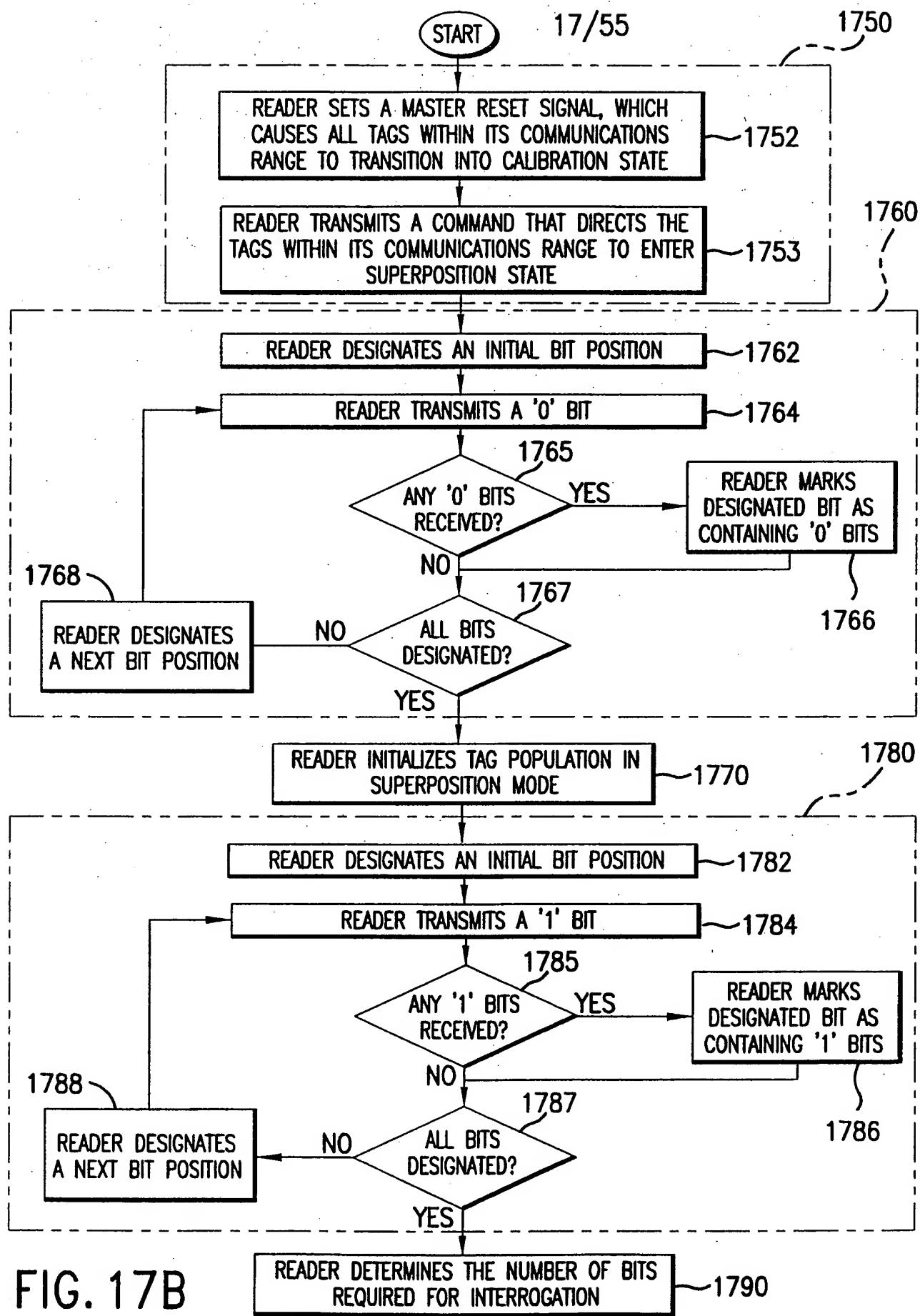


FIG. 17B

18/55

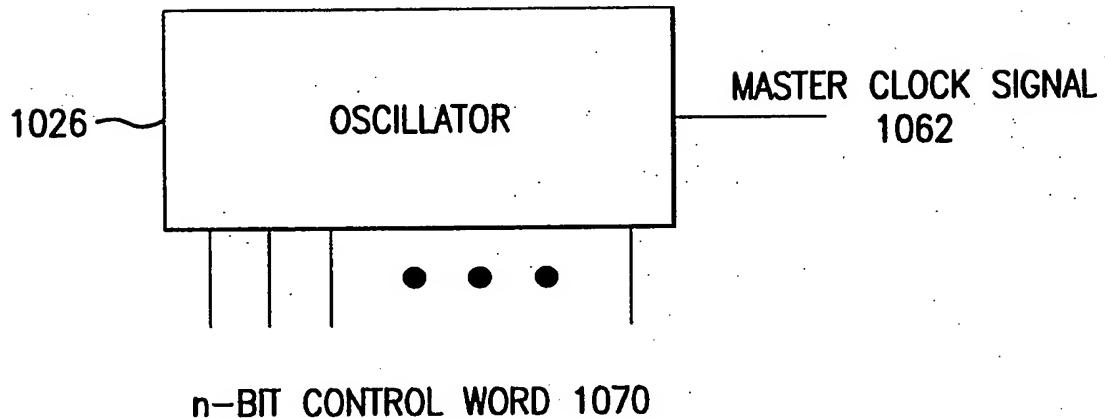


FIG. 18

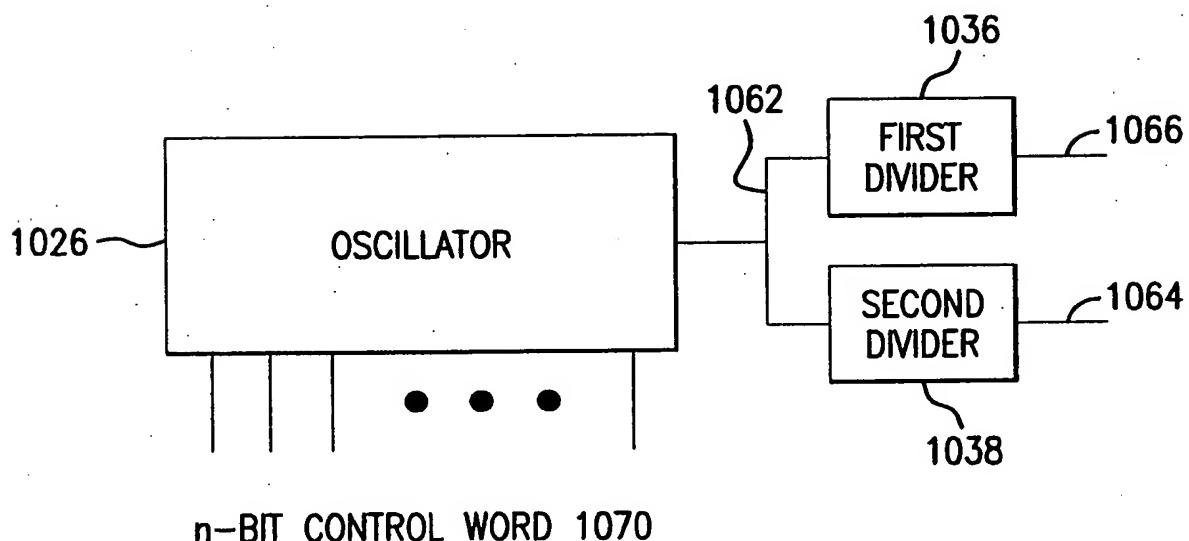


FIG. 19

19/55

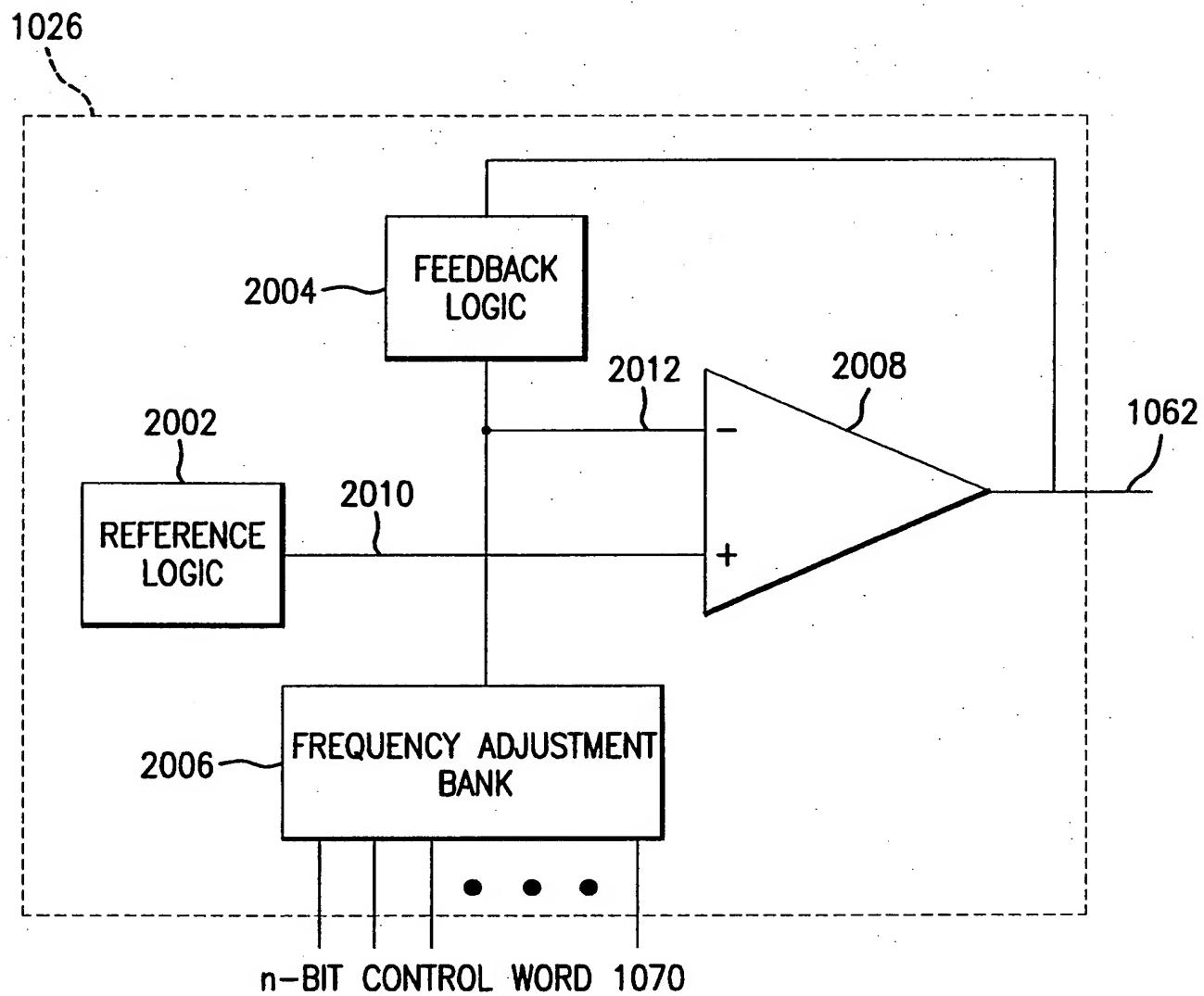


FIG. 20

20/55

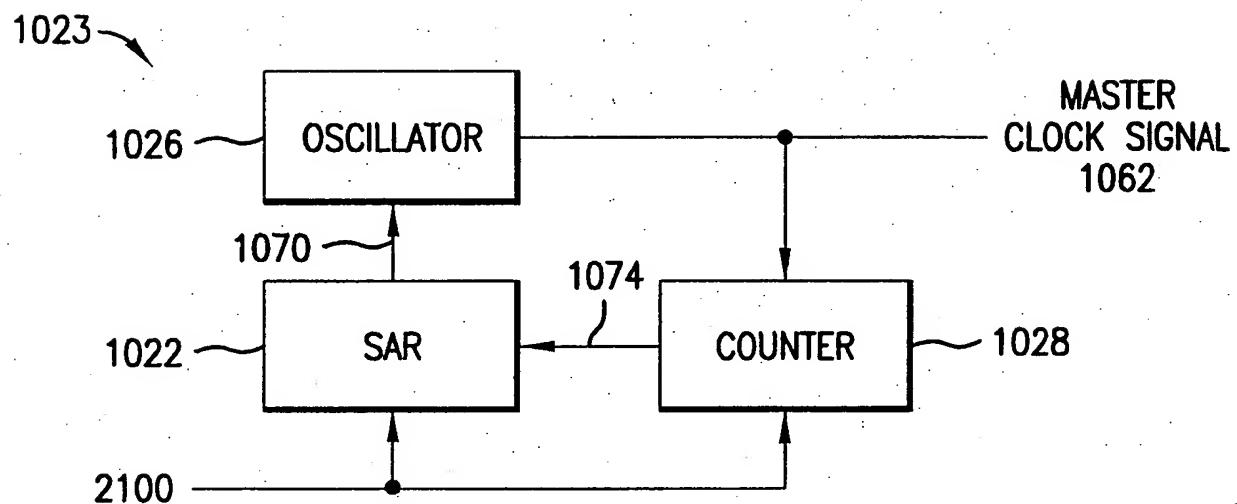


FIG. 21A

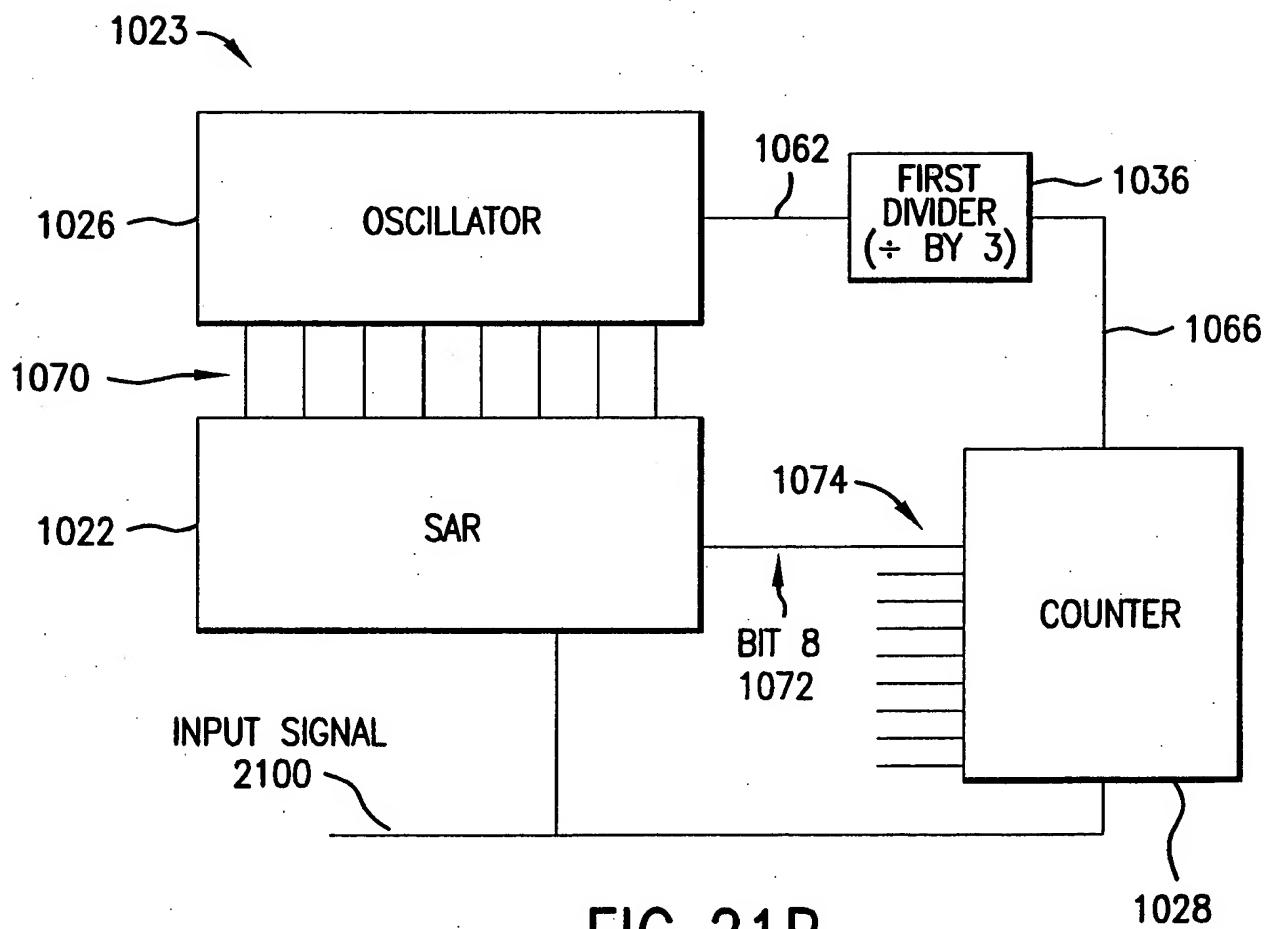


FIG. 21B

21 / 55

CONCEPTUAL IMPLEMENTATION OF SAR CALIBRATION

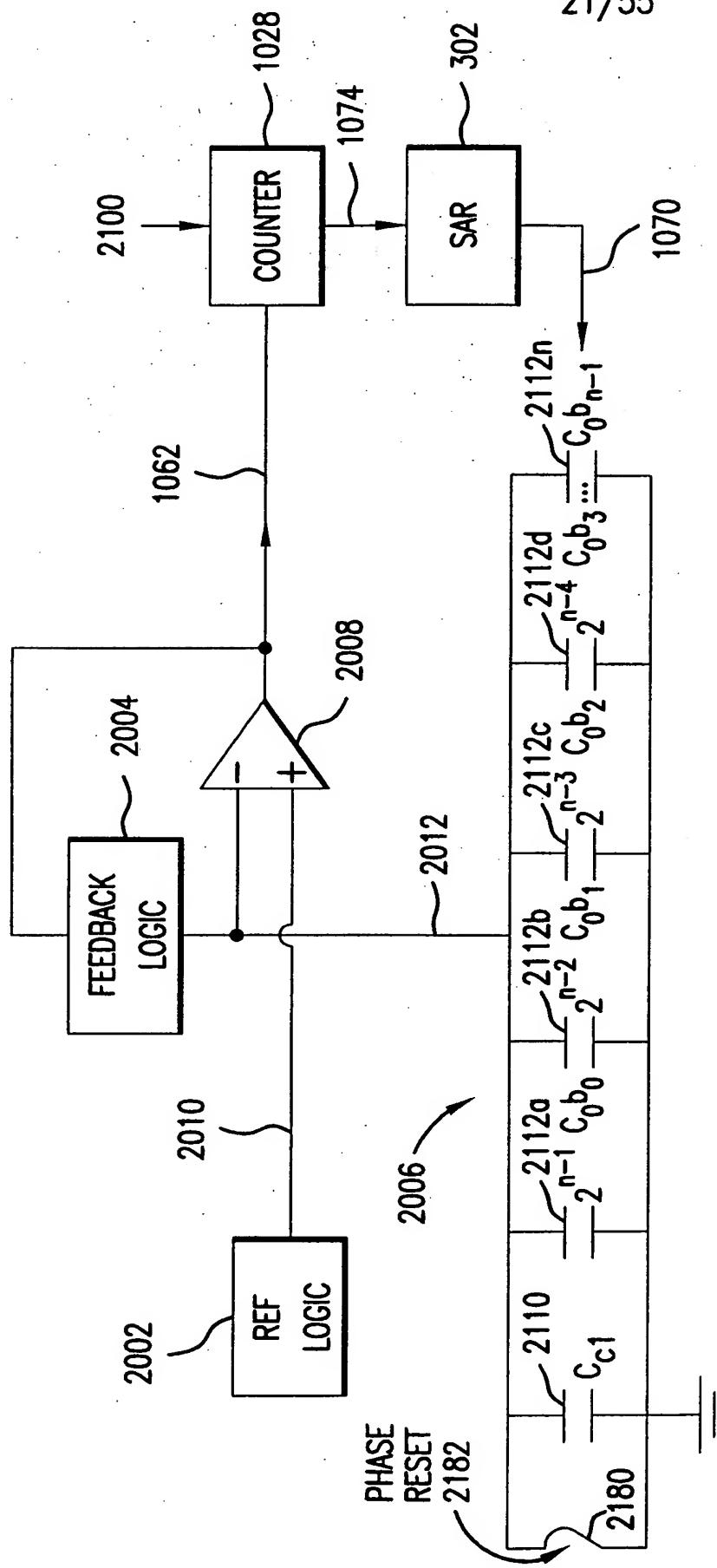


FIG. 21C

22/55

PHYSICAL IMPLEMENTATION OF ADJUSTABLE CAPACITOR BANK

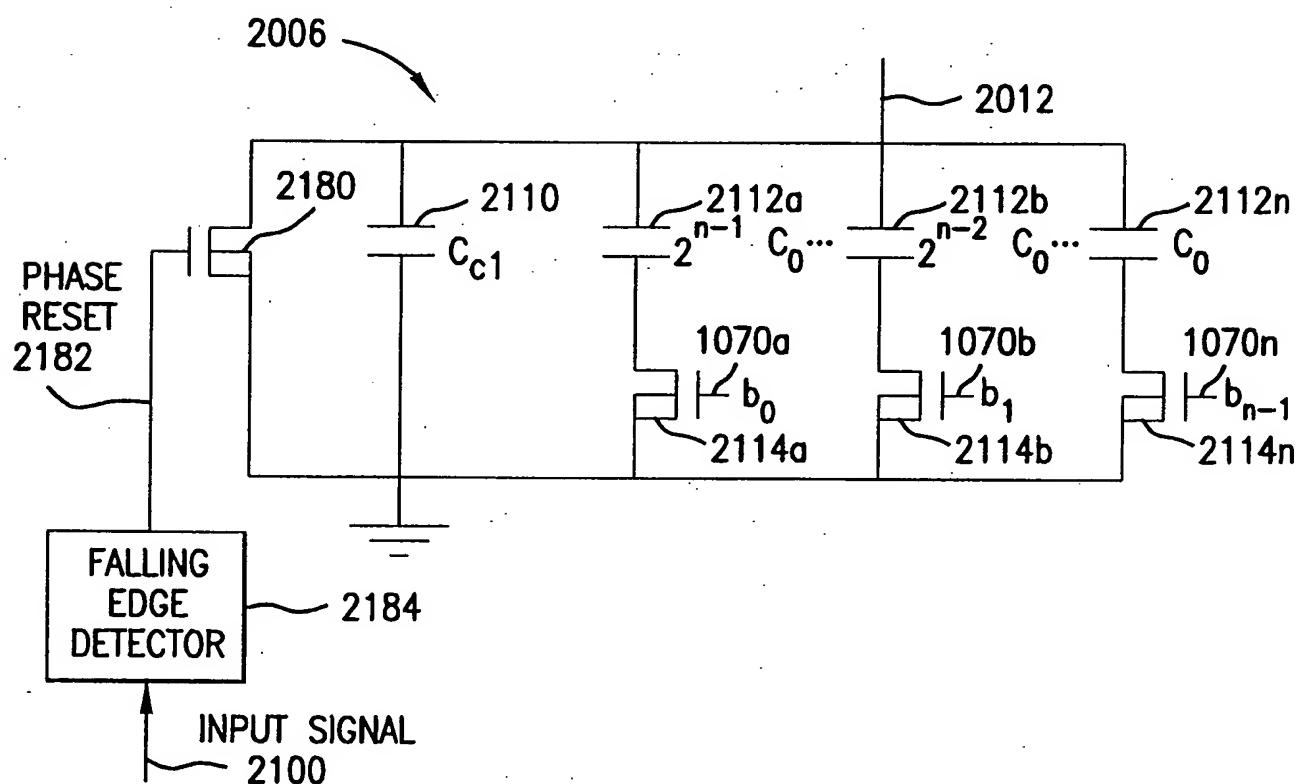


FIG. 21D

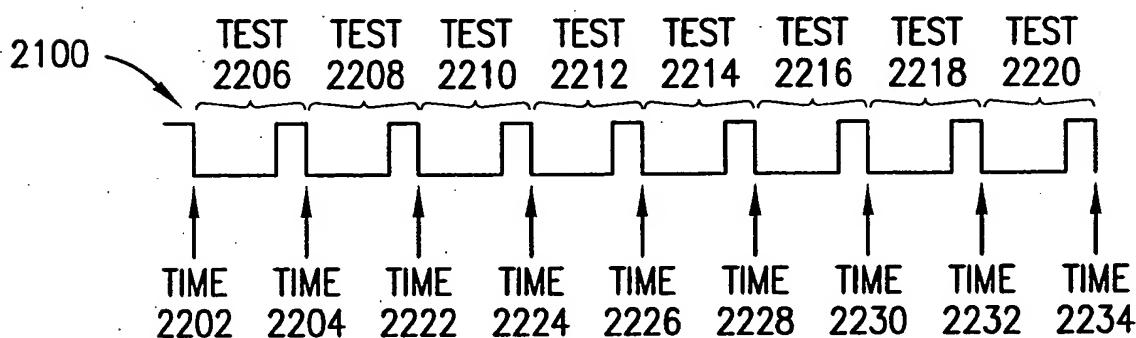
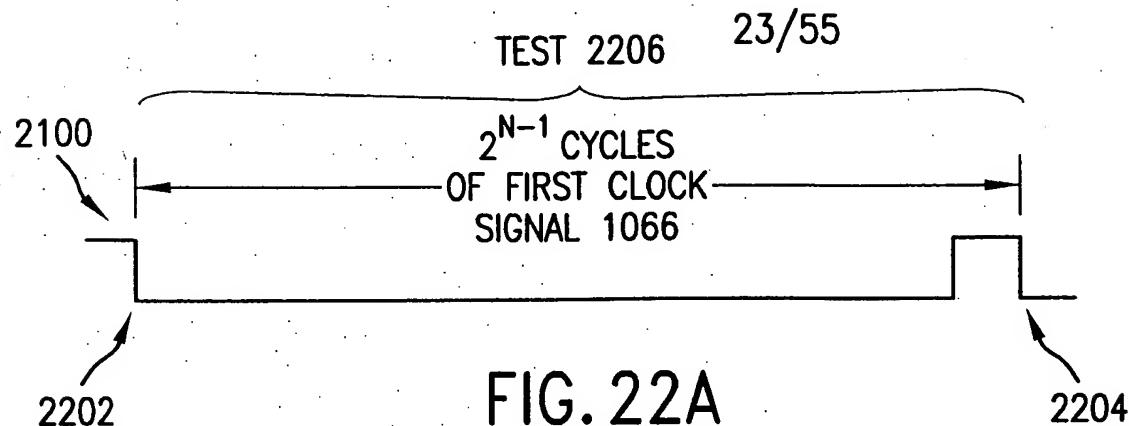


FIG. 22B

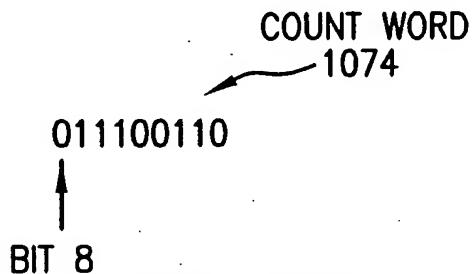


FIG. 23A

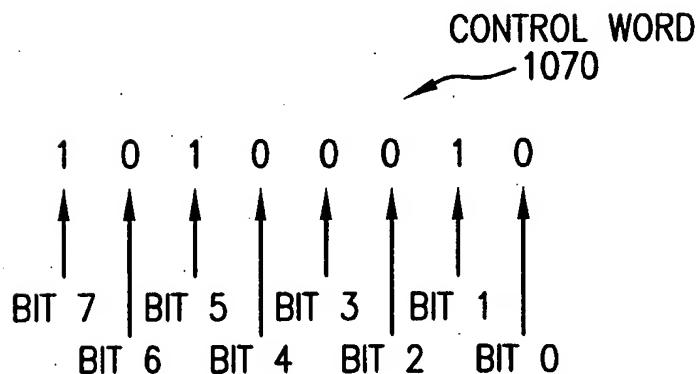


FIG. 23B

24/55

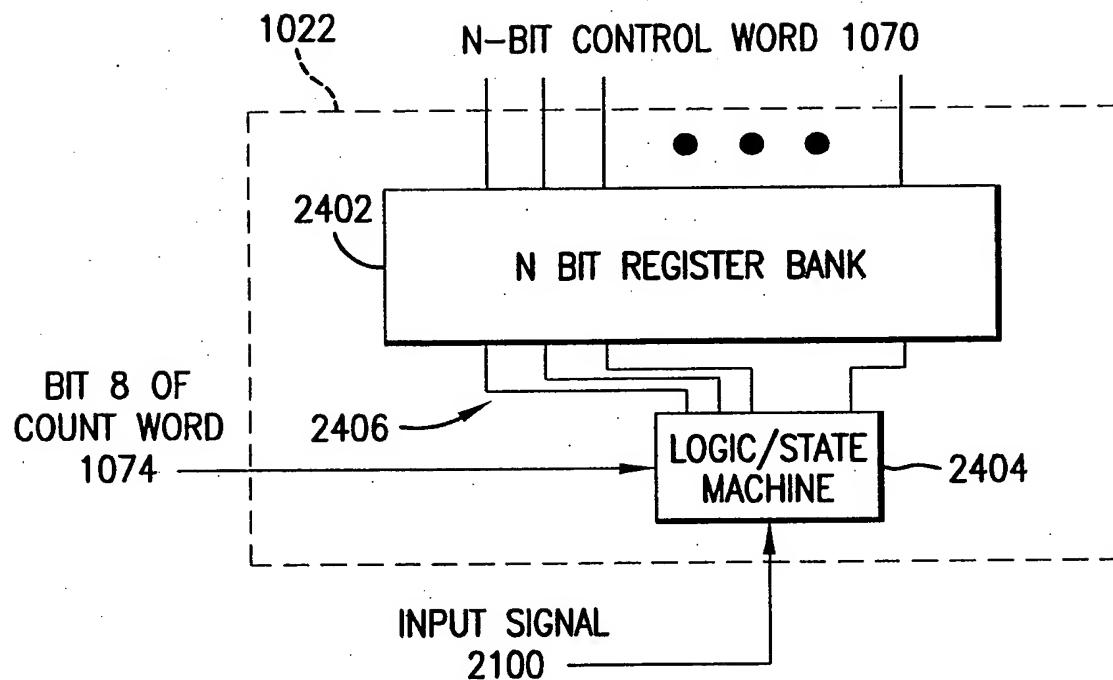


FIG. 24

25/55

2500

2502

A COUNT WORD IS INCREMENTED AFTER EACH CYCLE OF THE CLOCK SIGNAL THAT OCCURS DURING A CALIBRATION CYCLE OF THE INPUT SIGNAL

2504

THE OSCILLATOR FREQUENCY IS ADJUSTED BASED UPON THE COUNT WORD AFTER COMPLETION OF STEP 2502

FIG. 25A

2502

A COUNT WORD IS INCREMENTED AFTER EACH CYCLE OF THE CLOCK SIGNAL THAT OCCURS DURING A CALIBRATION CYCLE OF THE INPUT SIGNAL

2504

THE OSCILLATOR FREQUENCY IS ADJUSTED BASED UPON THE COUNT WORD AFTER COMPLETION OF STEP 2502

2506

THE COUNT WORD IS CLEARED

2508

STEPS (a)-(c) ARE REPEATED N TIMES FOR SUBSEQUENT CORRESPONDING CYCLES OF THE INPUT SIGNAL, WHEREIN N IS EQUAL TO THE NUMBER OF BITS OF THE CONTROL WORD

FIG. 25B

26/55

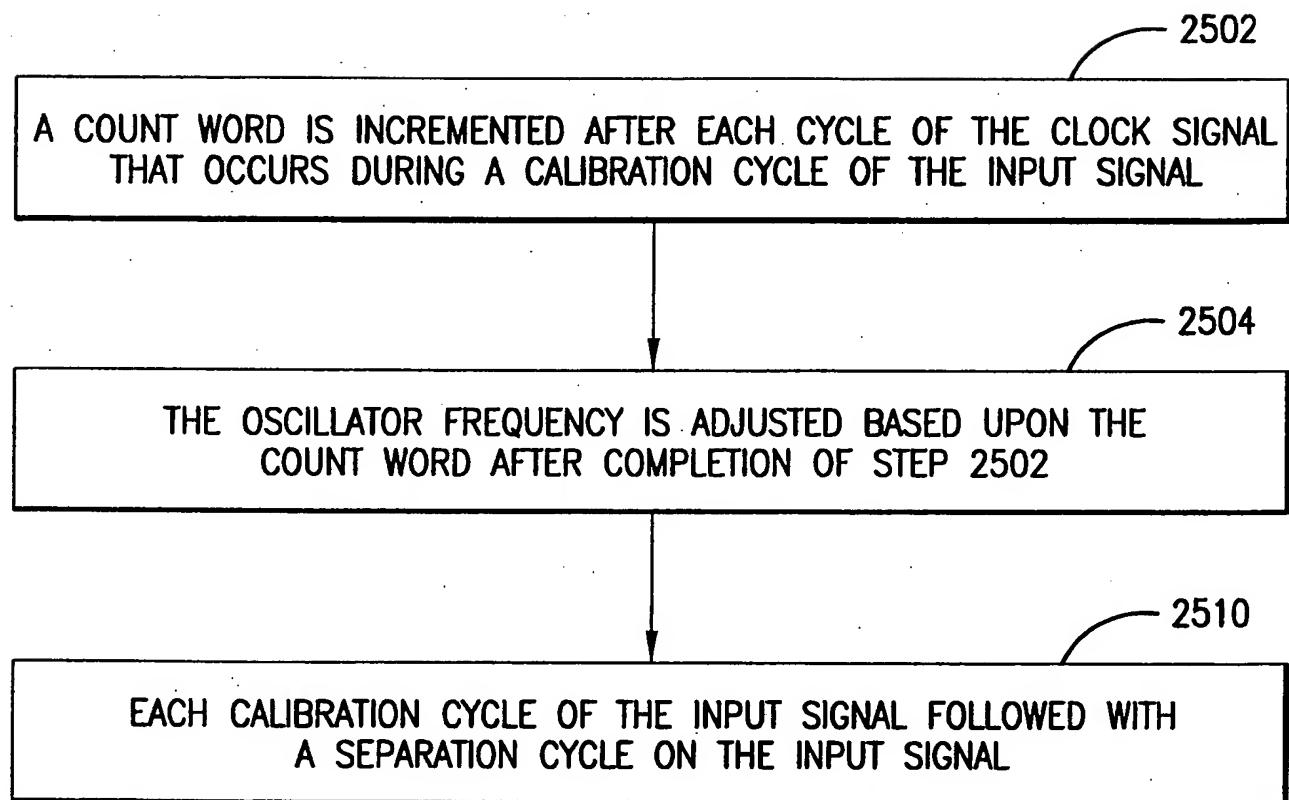


FIG. 25C

27/55

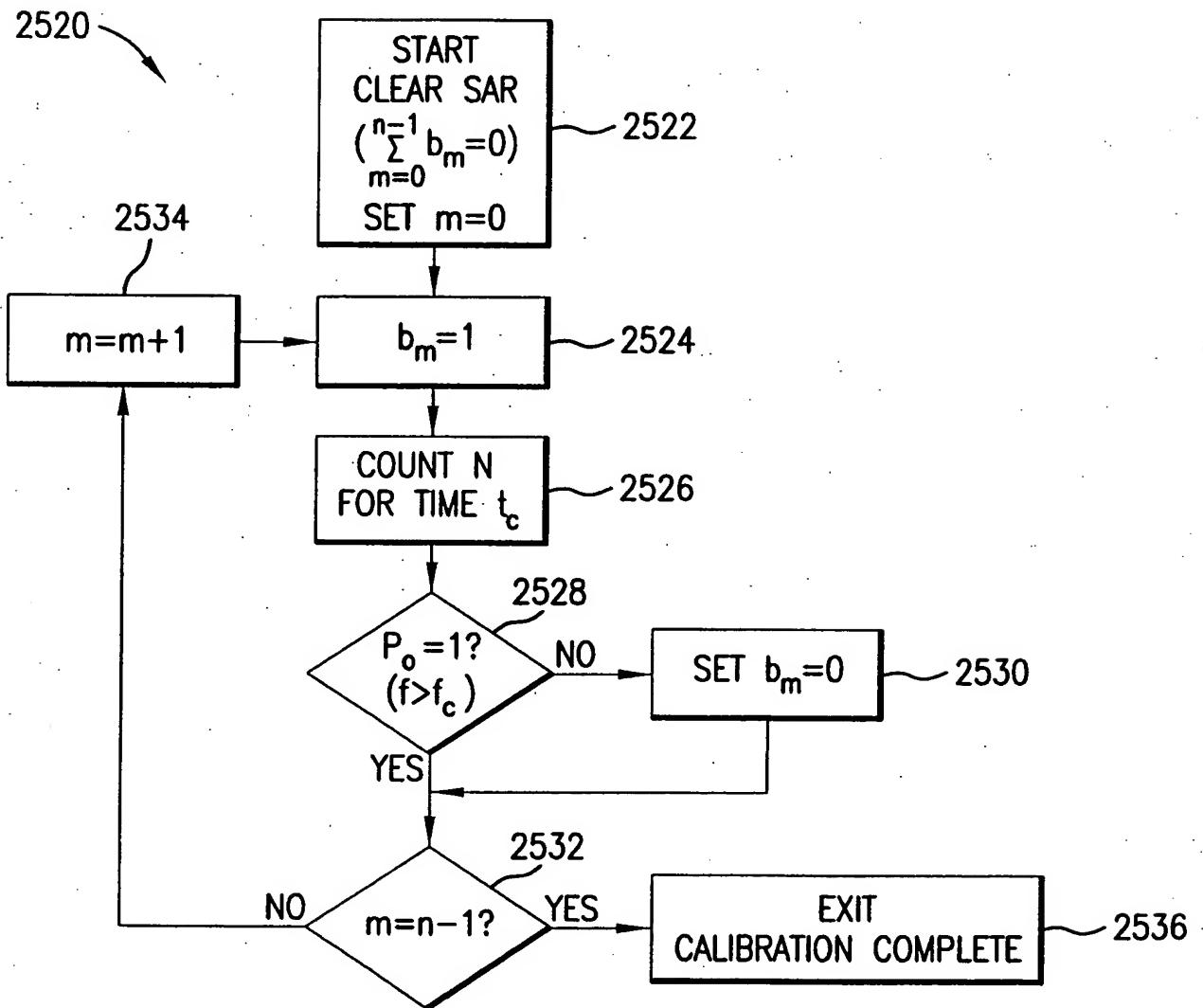


FIG. 25D

28/55

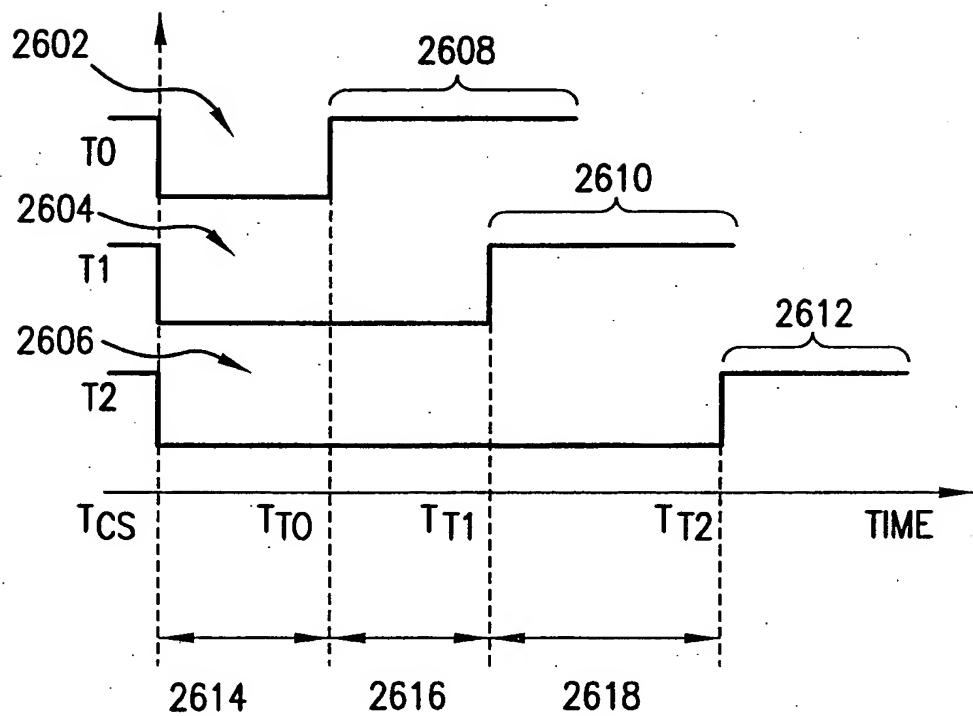


FIG.26A

29/55

DATA SYMBOL TIMING CHART

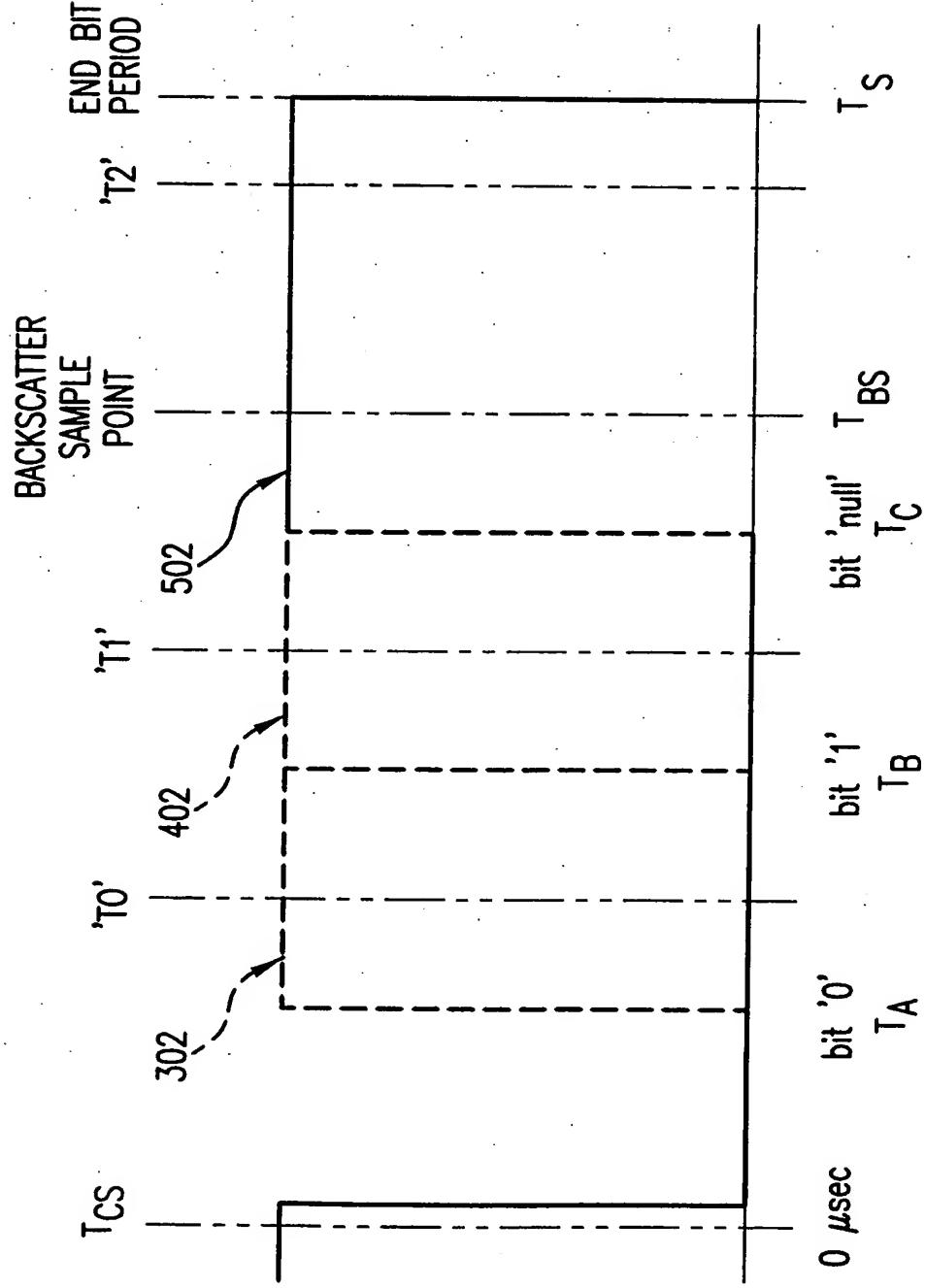


FIG. 26B

30/55

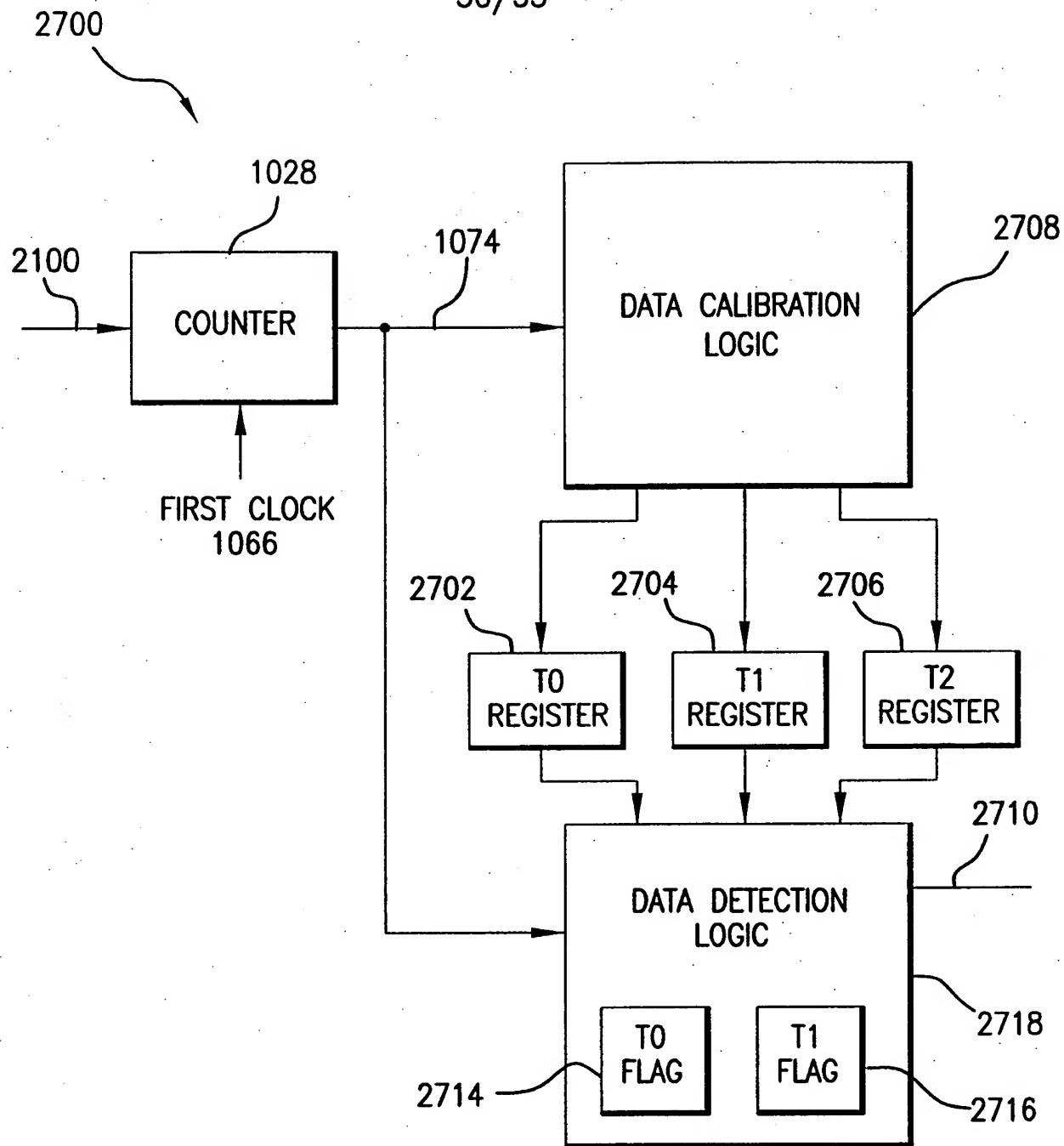


FIG.27

31/55

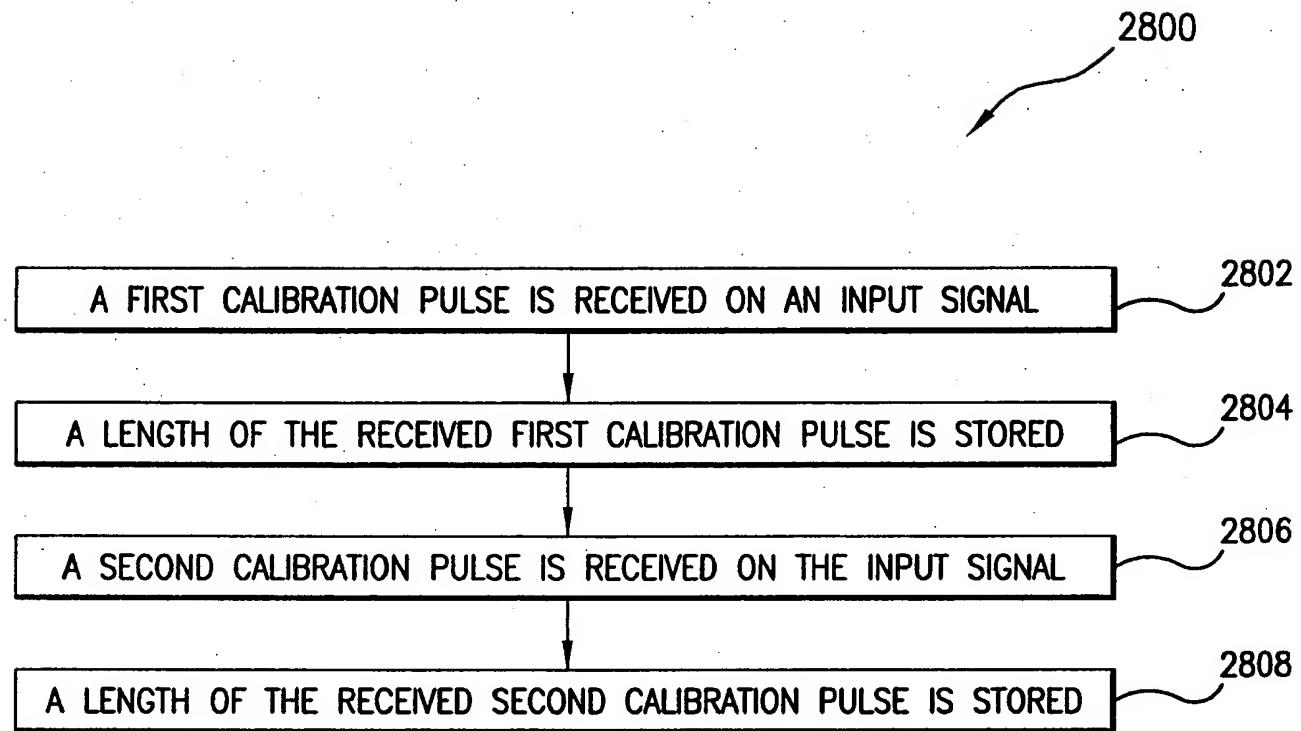


FIG.28A

32/55

2800

2810

FROM FLOWCHART 2800



A DATA SYMBOL HAVING A PULSE PORTION IS RECEIVED ON THE INPUT SIGNAL, WHEREIN THE PULSE PORTION HAS A LENGTH

2812

A FIRST FLAG IS SET IF THE LENGTH OF THE PULSE PORTION IS GREATER THAN OR EQUAL TO THE STORED LENGTH OF THE FIRST CALIBRATION PULSE

2814

A SECOND FLAG IS SET IF THE LENGTH OF THE PULSE PORTION IS GREATER THAN OR EQUAL TO THE STORED LENGTH OF THE SECOND CALIBRATION PULSE

2816

THE DATA SYMBOL IS DETERMINED TO BE A FIRST LOGICAL VALUE IF THE FIRST FLAG IS NOT SET DURING STEP 2812

2818

THE DATA SYMBOL IS DETERMINED TO BE A SECOND LOGICAL VALUE IF THE FIRST FLAG IS SET AND THE SECOND FLAG IS NOT SET

2820

THE DATA SYMBOL IS DETERMINED TO BE A THIRD LOGICAL VALUE IF THE FIRST FLAG IS SET AND THE SECOND FLAG IS SET

2822

THE FIRST LOGICAL VALUE IS DEFINED AS A LOGICAL 1 BIT

2824

THE SECOND LOGICAL VALUE IS DEFINED AS A LOGICAL 0 BIT

2826

THE THIRD LOGICAL VALUE IS DEFINED AS A LOGICAL NULL BIT

FIG.28B

33/55

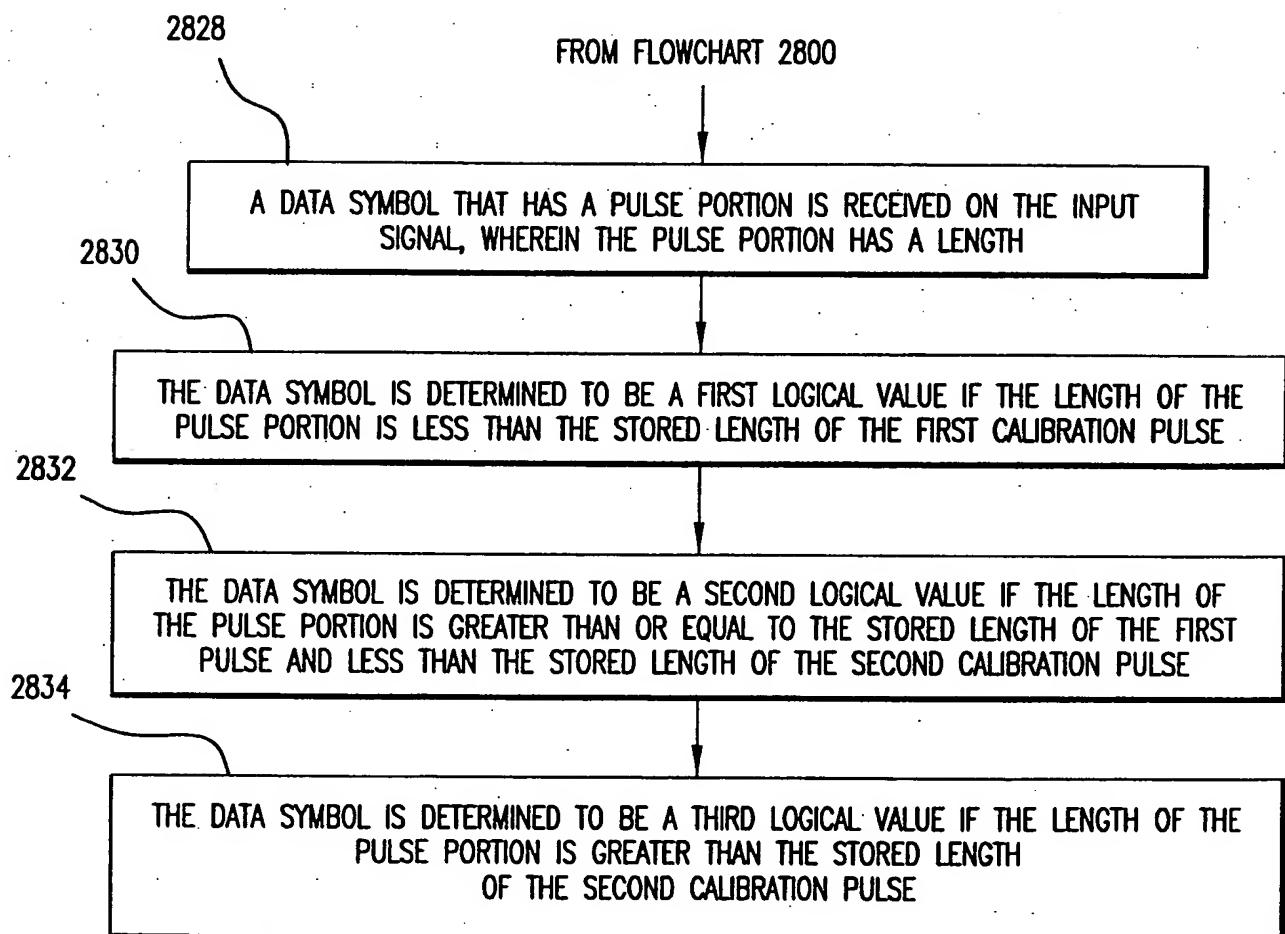


FIG.28C

34/55

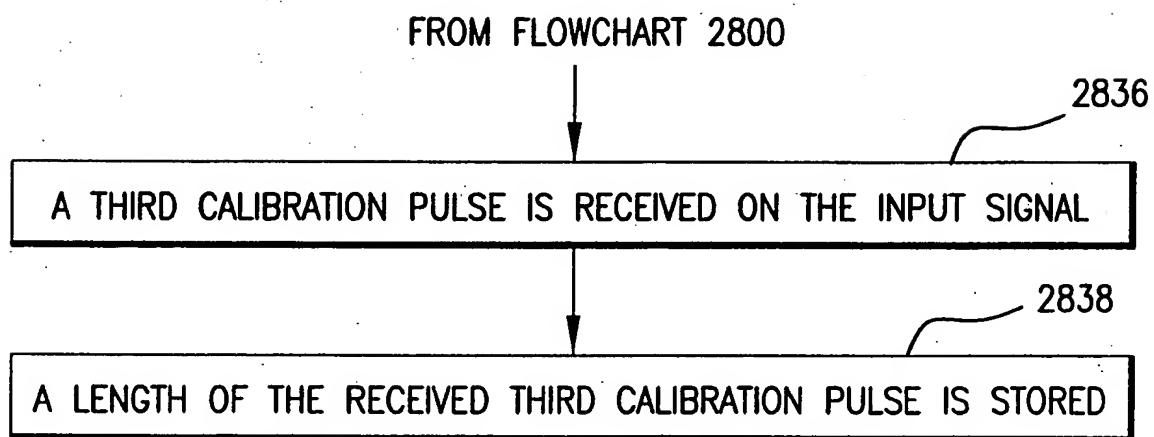


FIG.28D

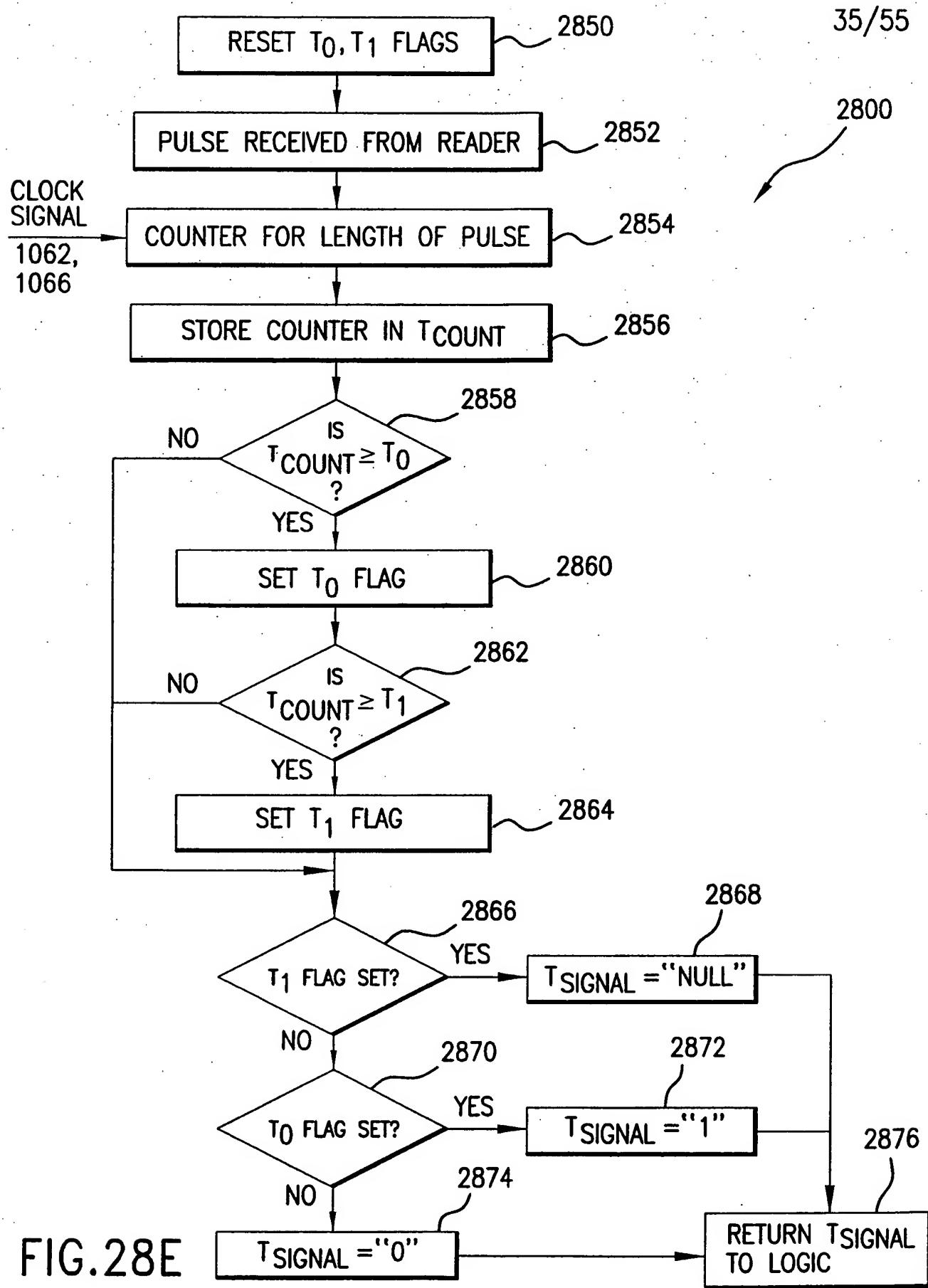


FIG.28E

36/55

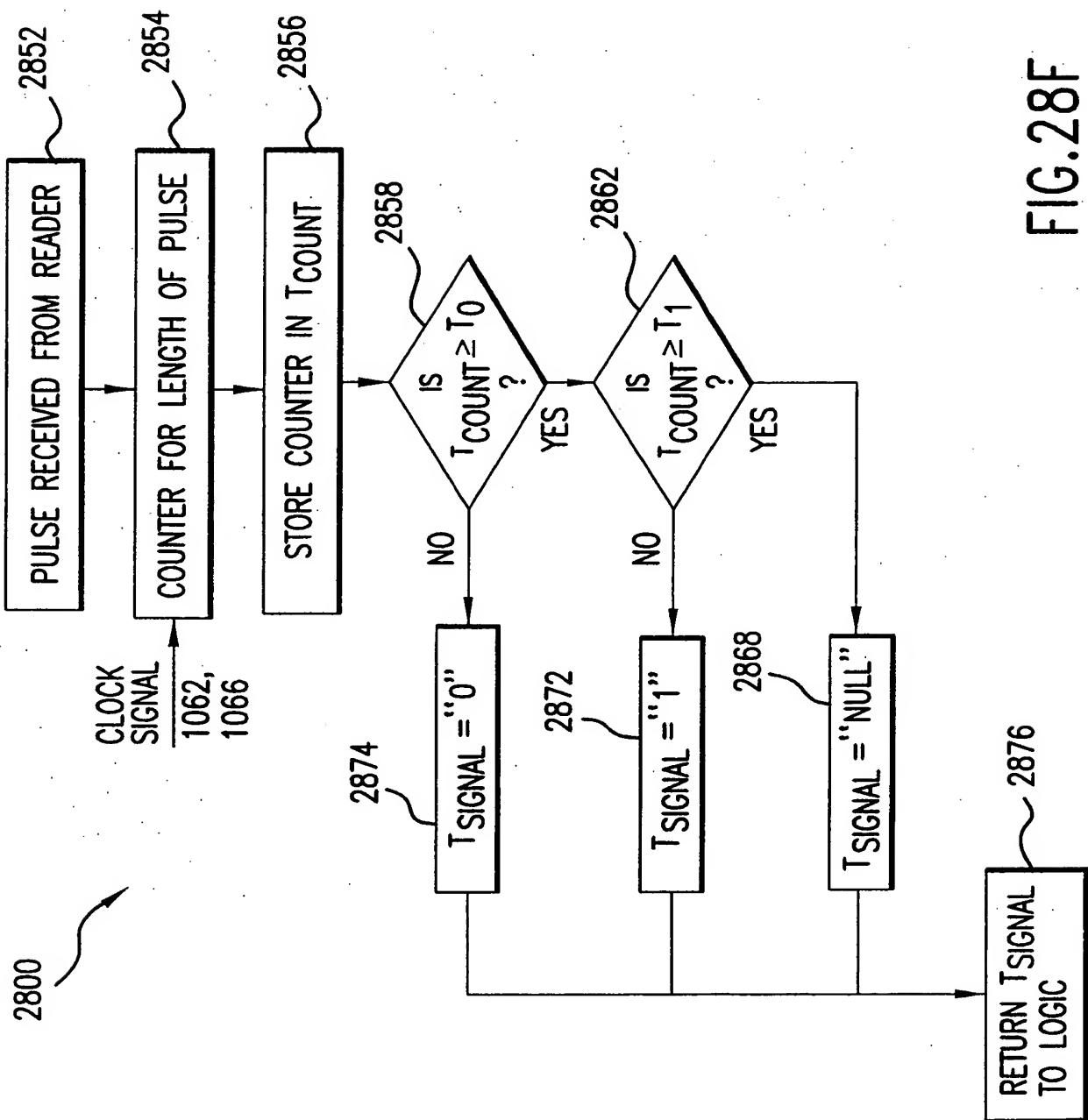


FIG.28F

37/55

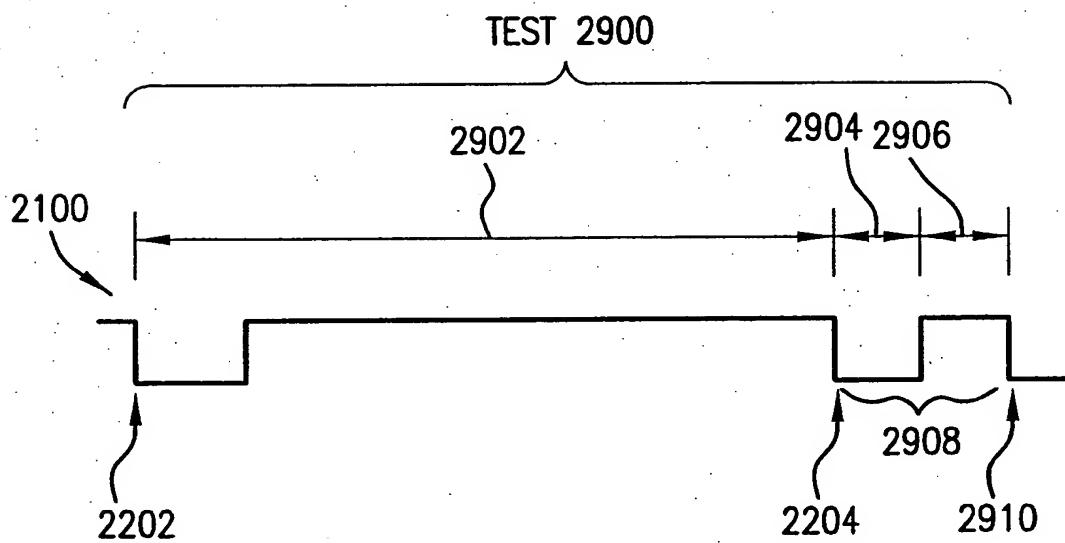


FIG.29

38/55

3000

ANALOG FRONT END

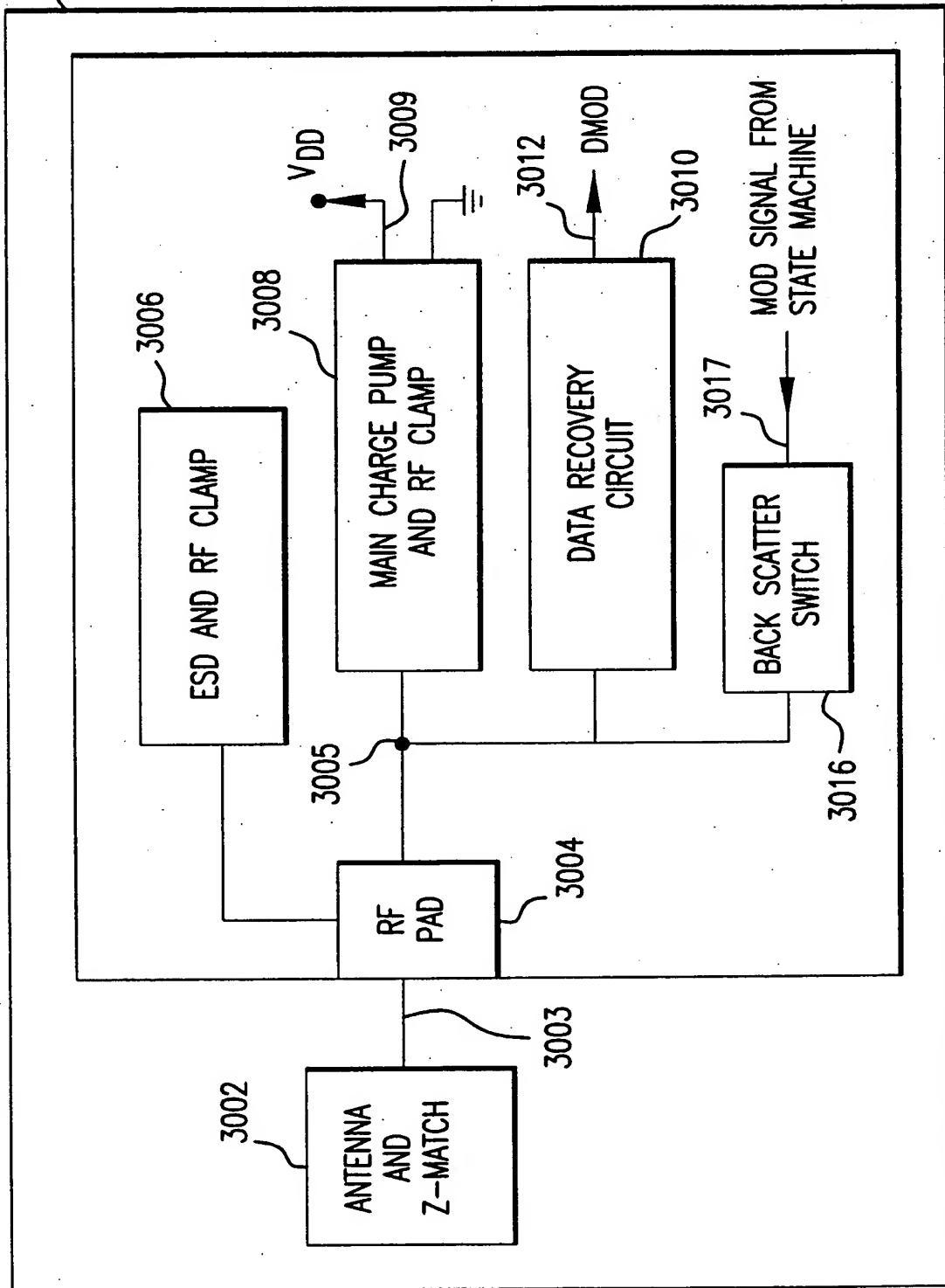


FIG.30

39/55

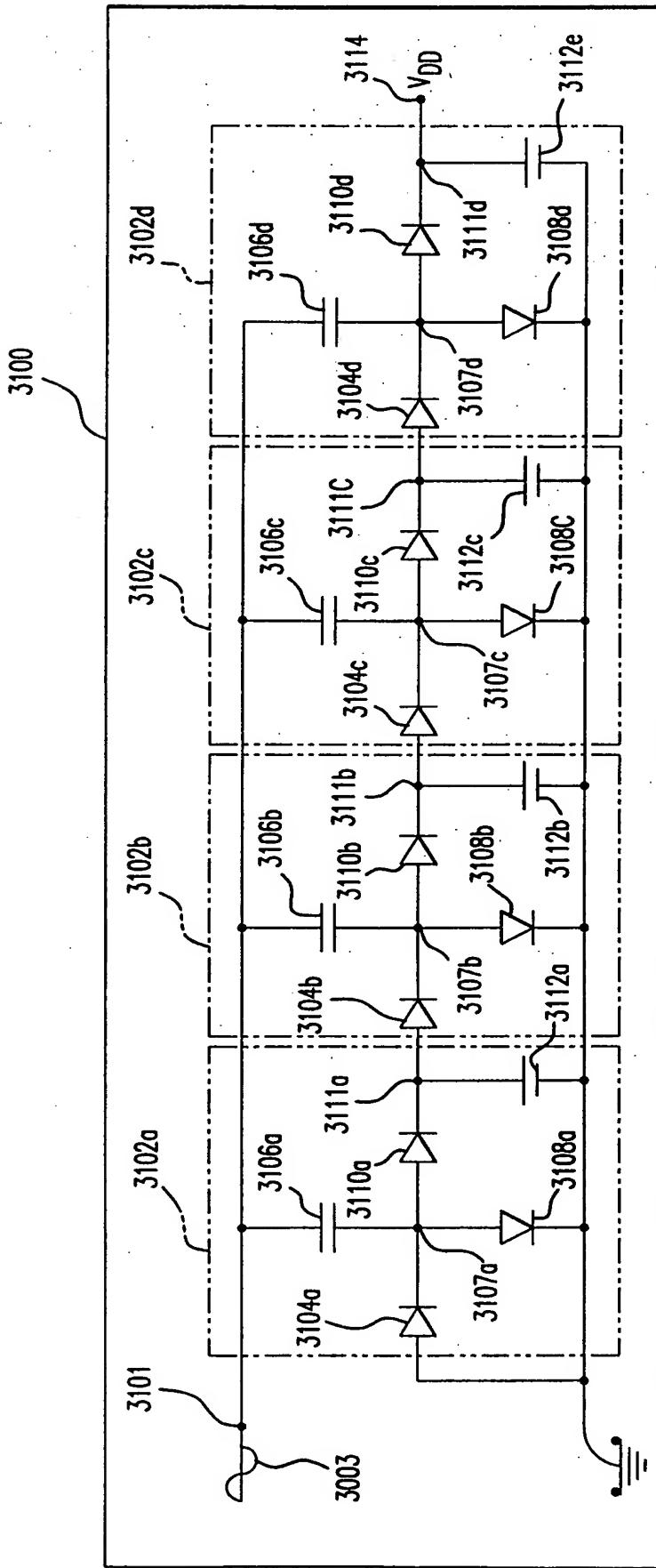


FIG. 31

40/55

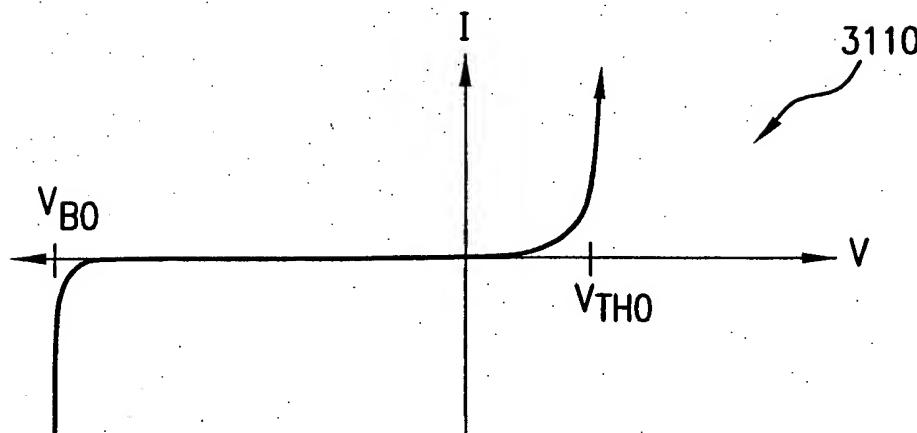


FIG.32A

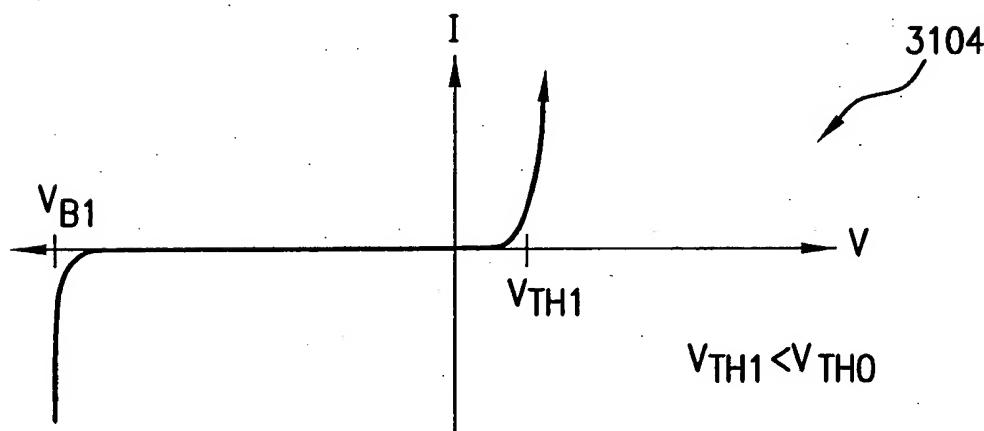


FIG.32B

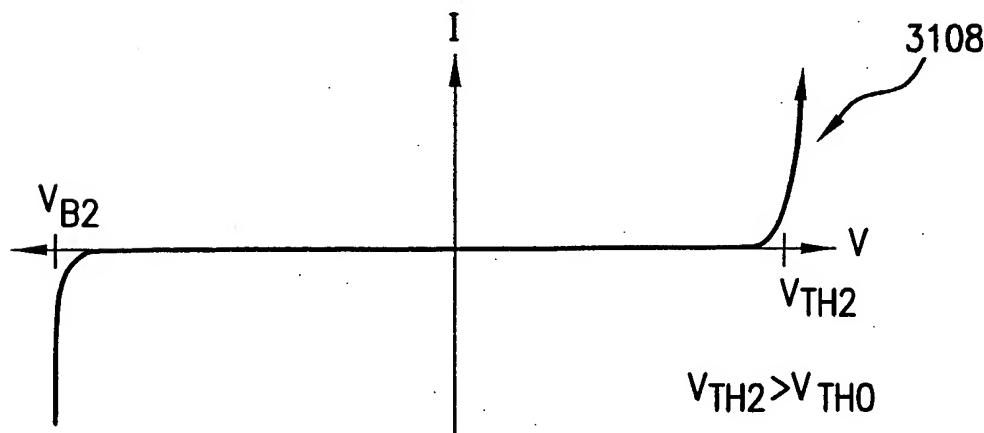


FIG.32C

41/55

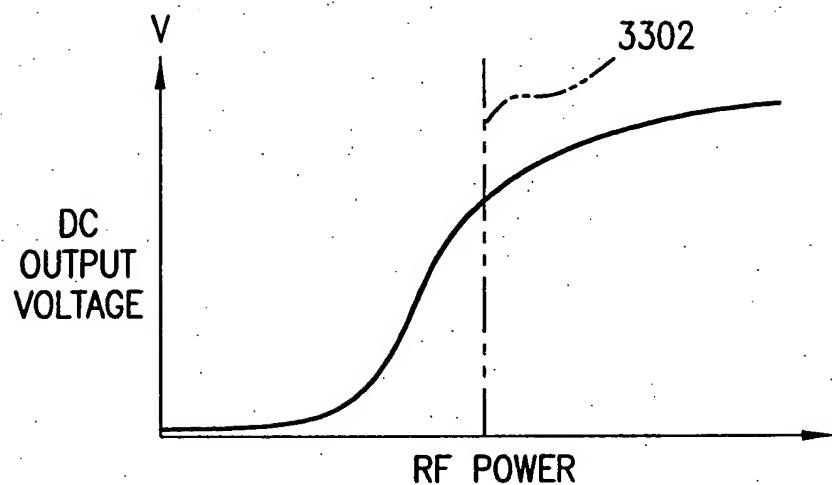


FIG.33A

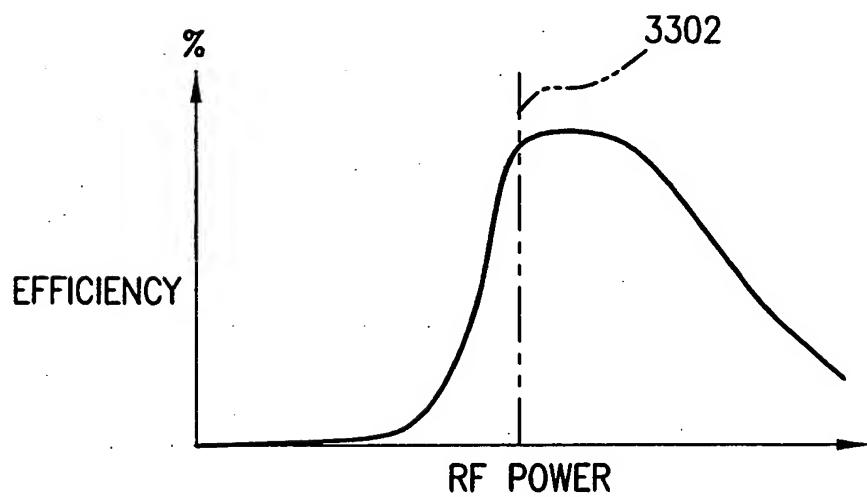


FIG.33B

42/55

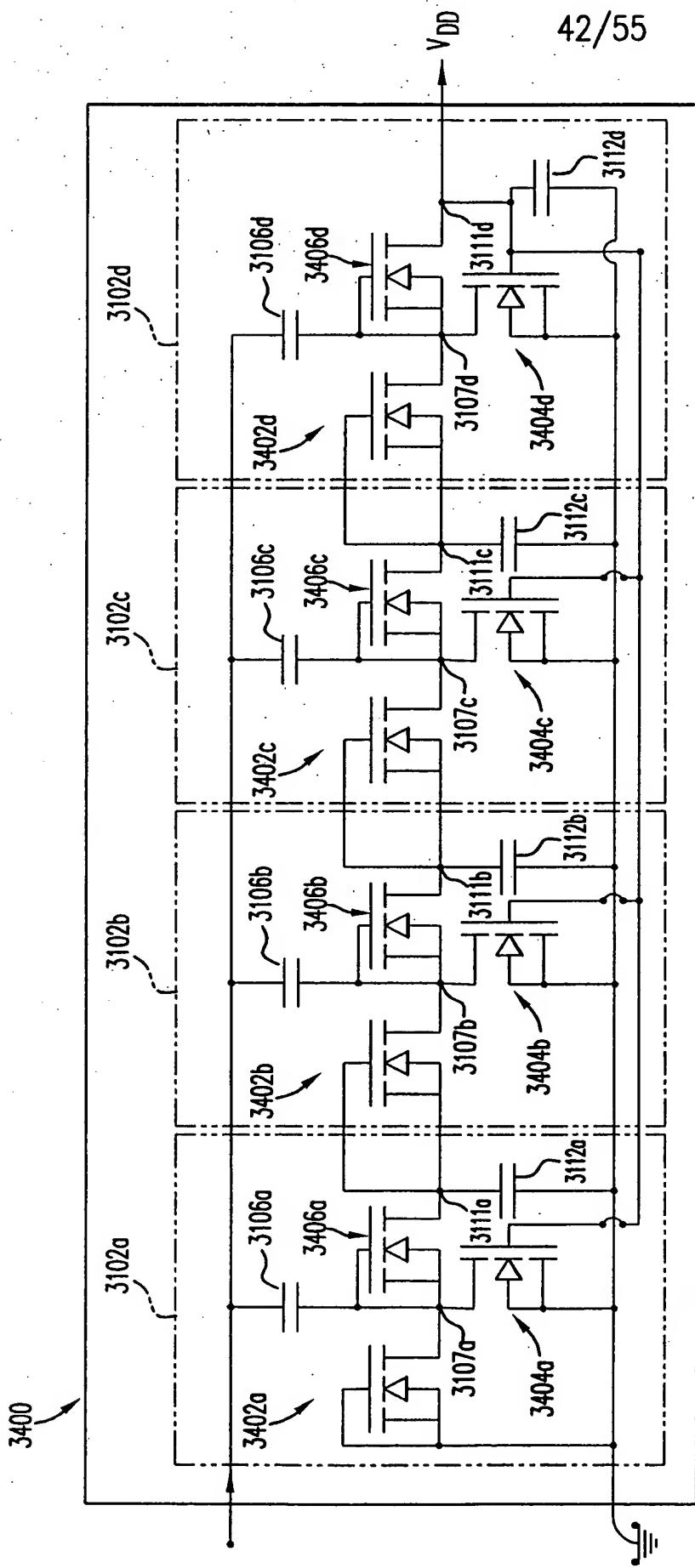


FIG. 34A

43/55

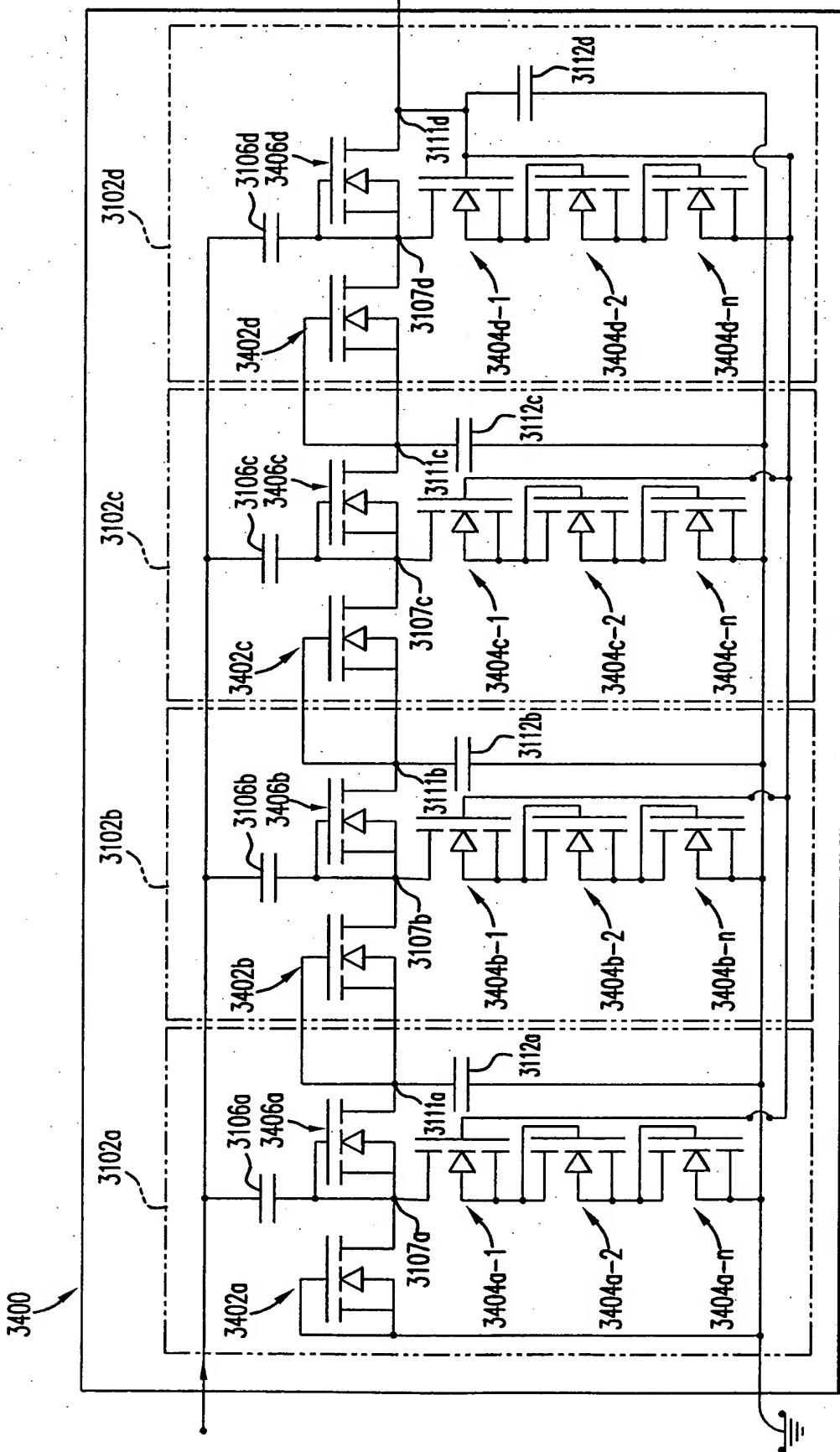


FIG.34B

44/55

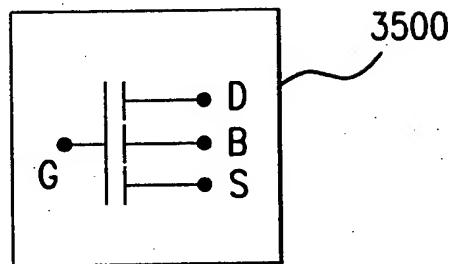


FIG.35A

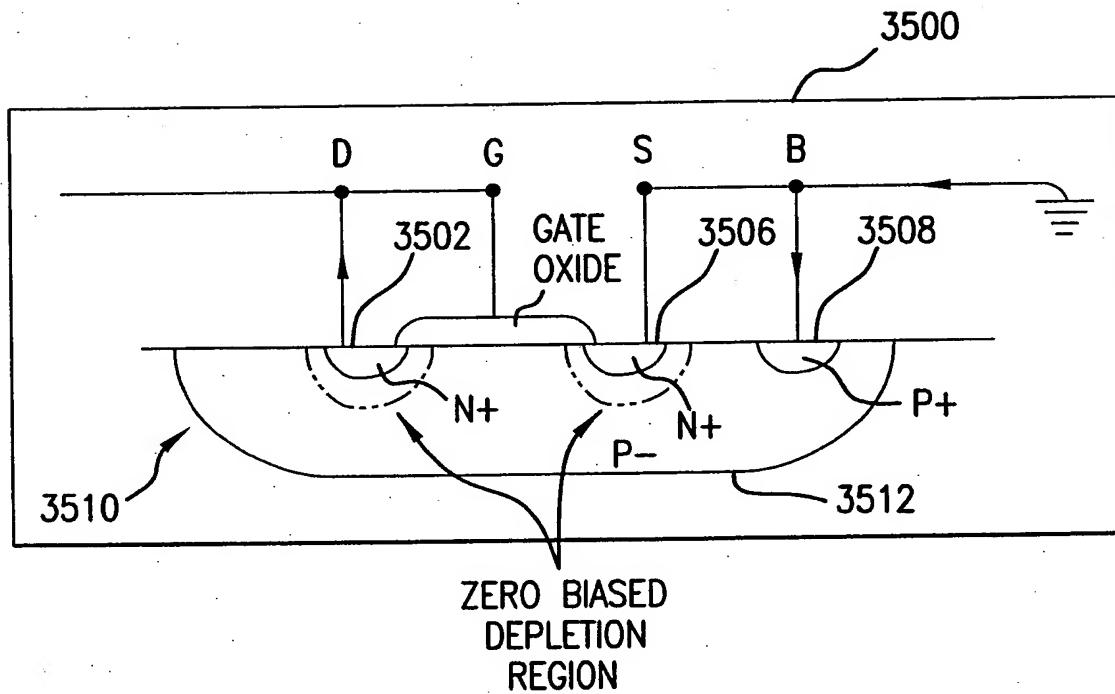


FIG.35B

45/55

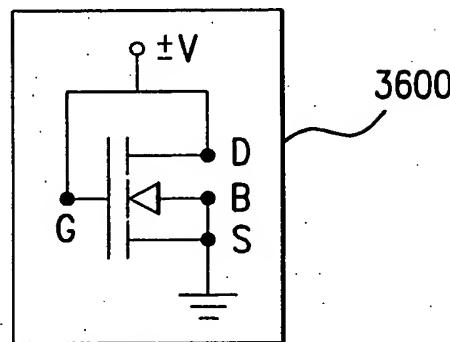


FIG.36A

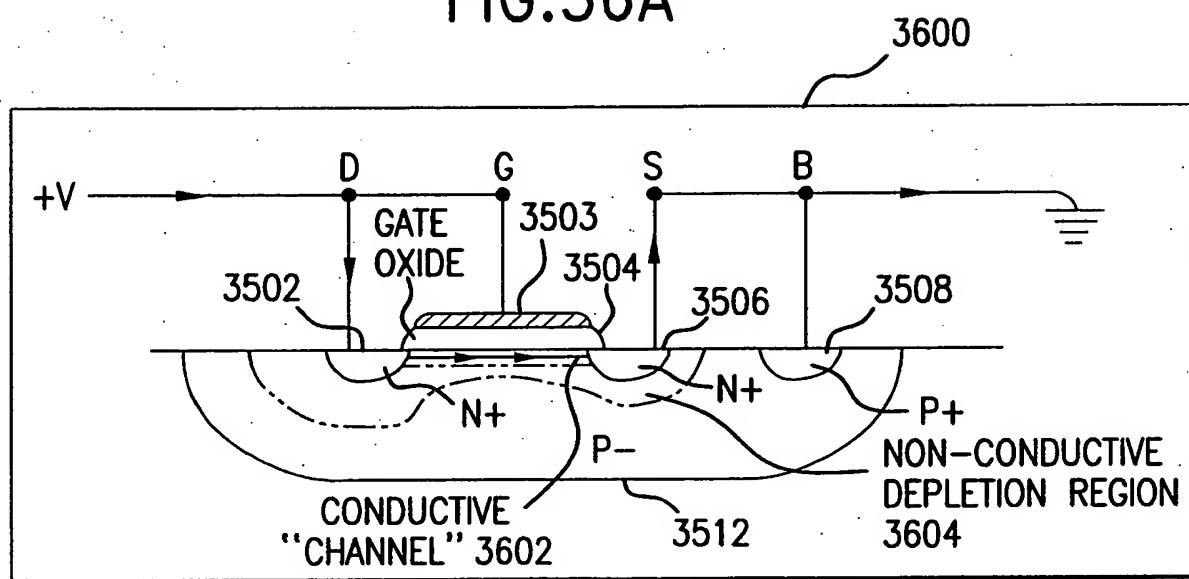


FIG.36B

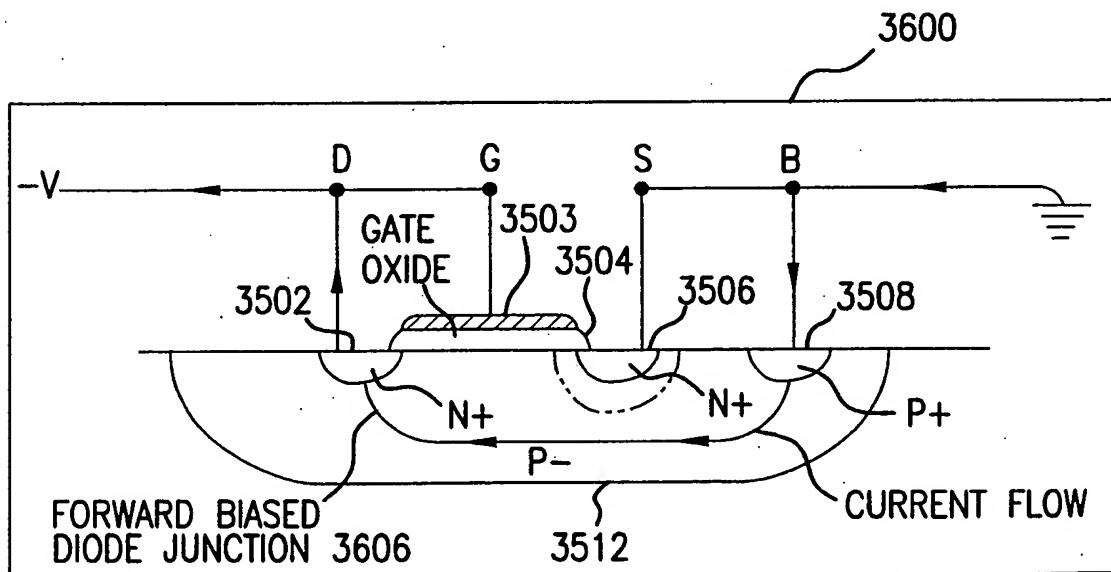


FIG.36C

46/55

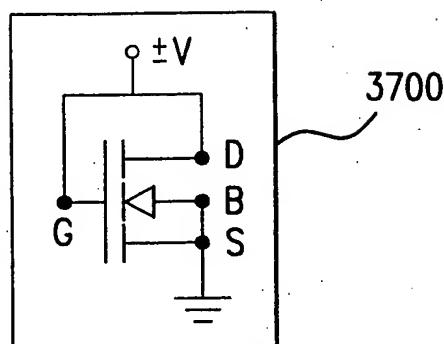


FIG.37A

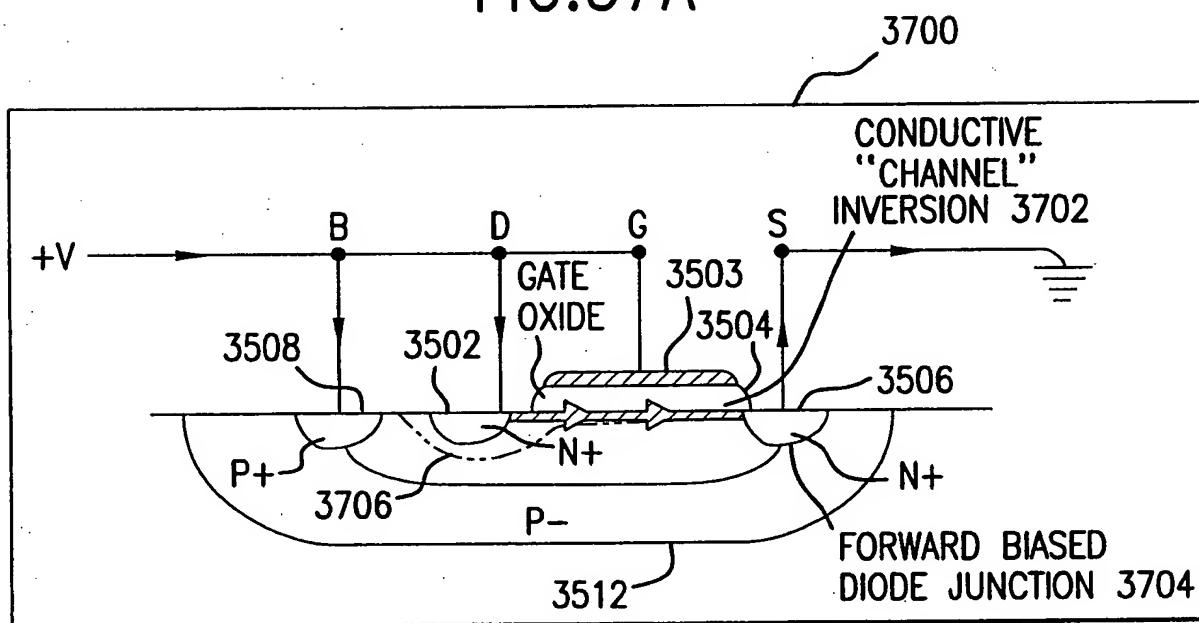


FIG.37B

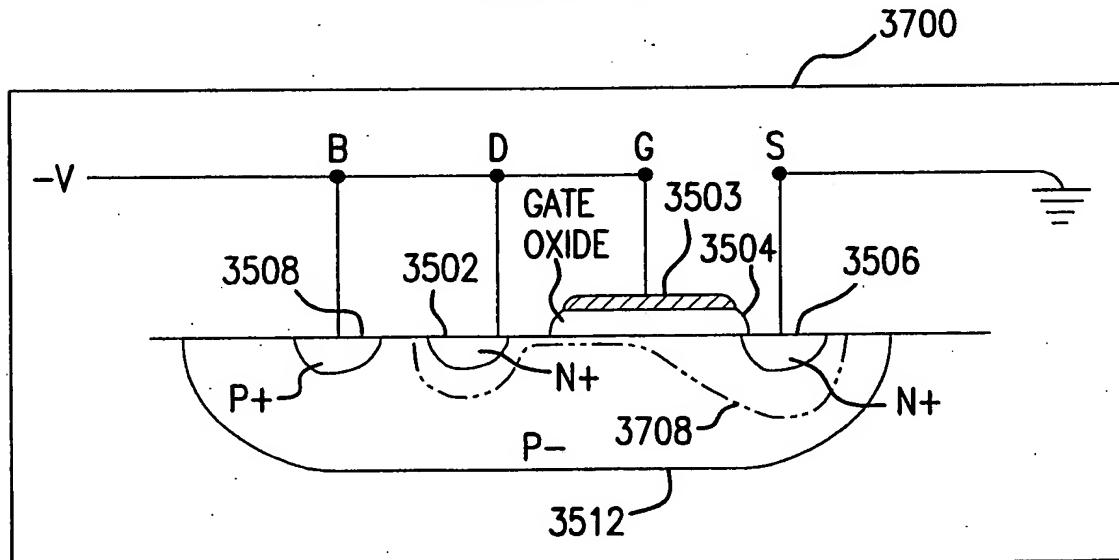


FIG.37C

47/55

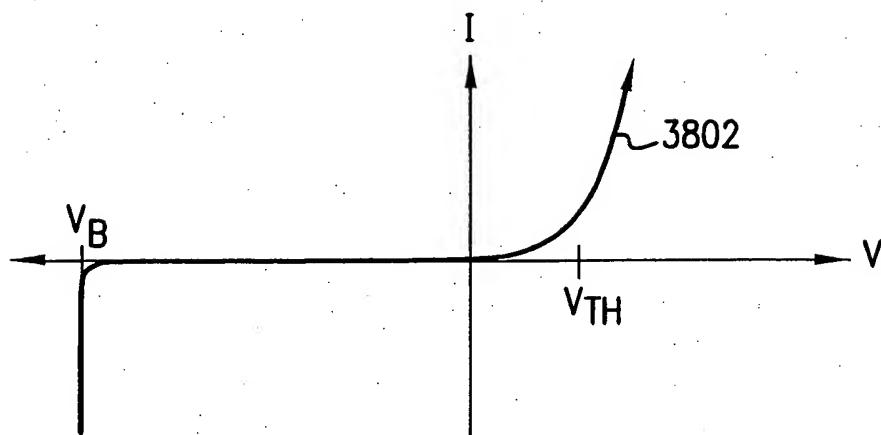


FIG.38A

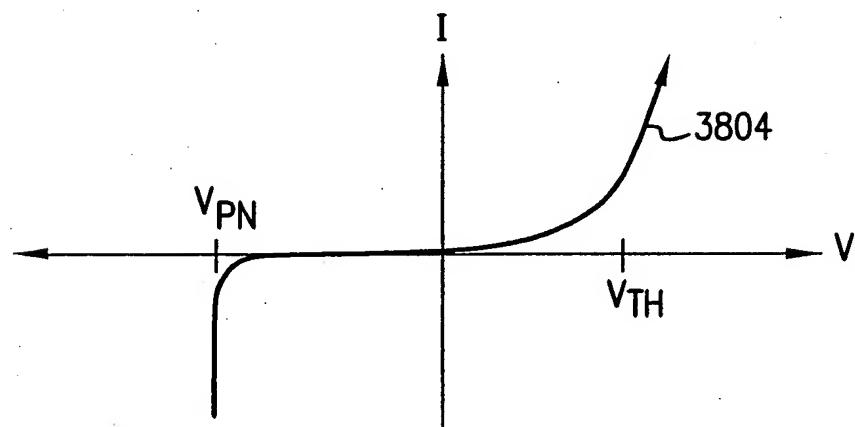


FIG.38B

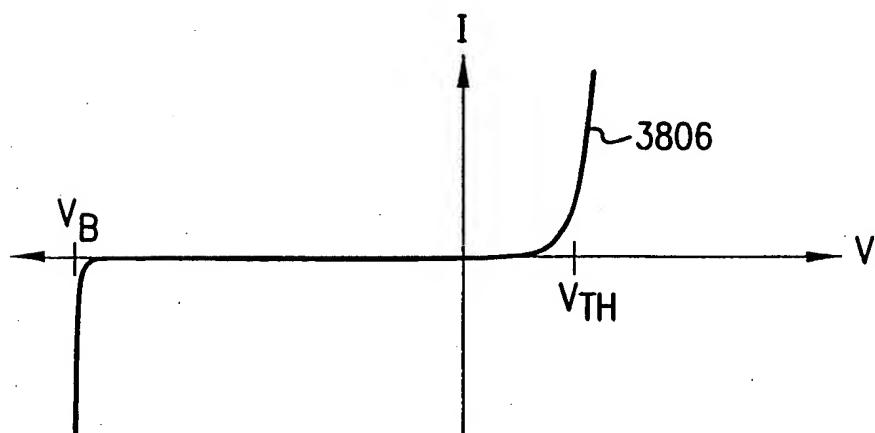


FIG.38C

48/55

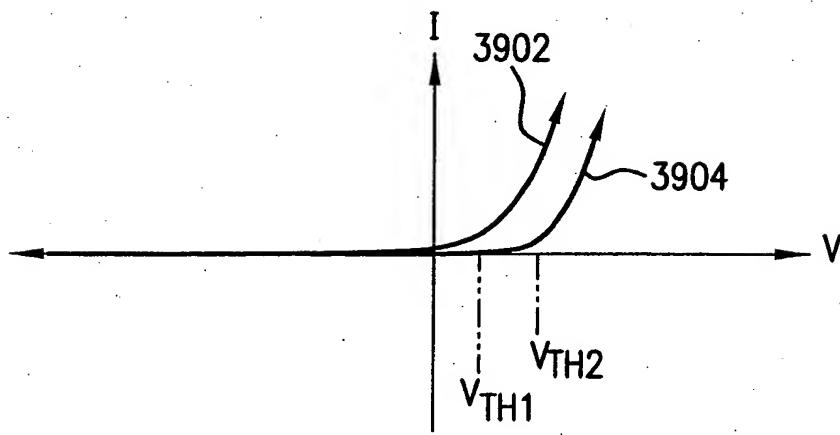


FIG.39

49/55

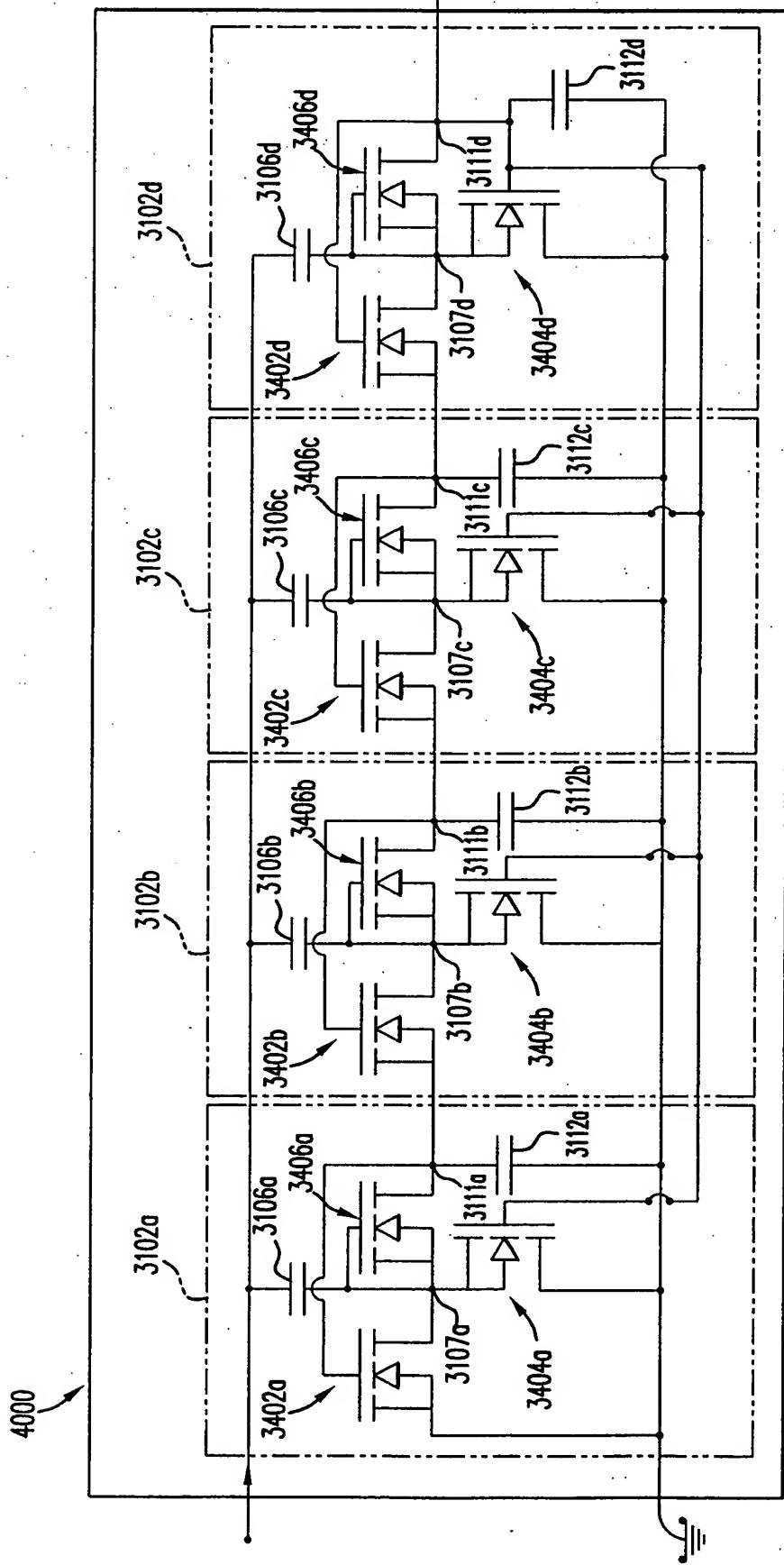


FIG.40A

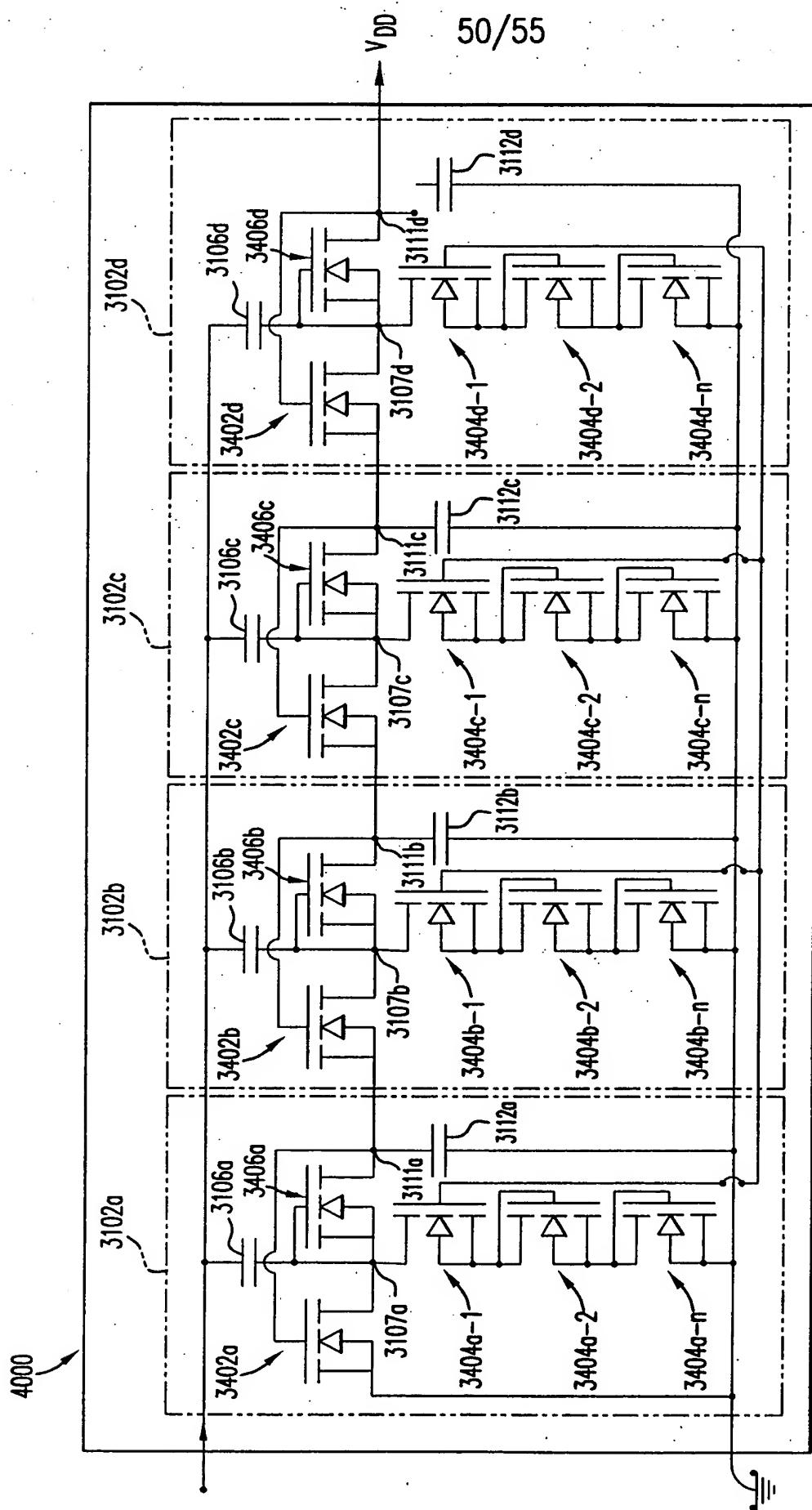


FIG. 40B

51/55

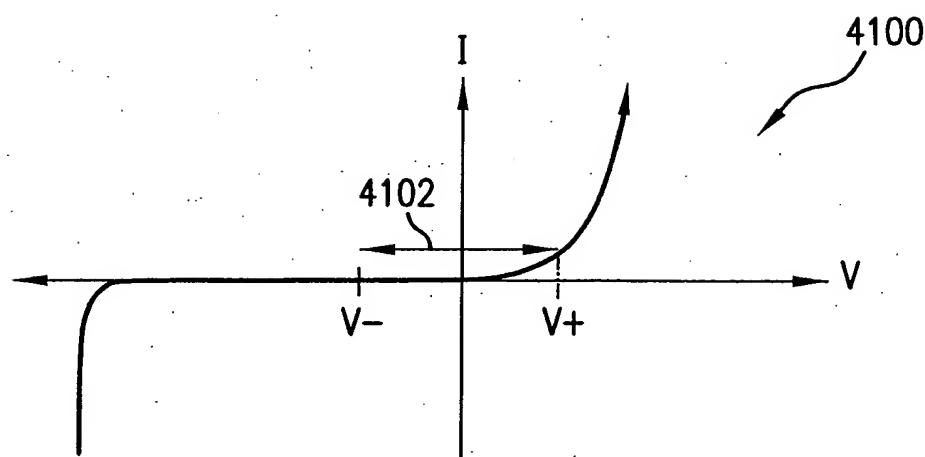


FIG.41A

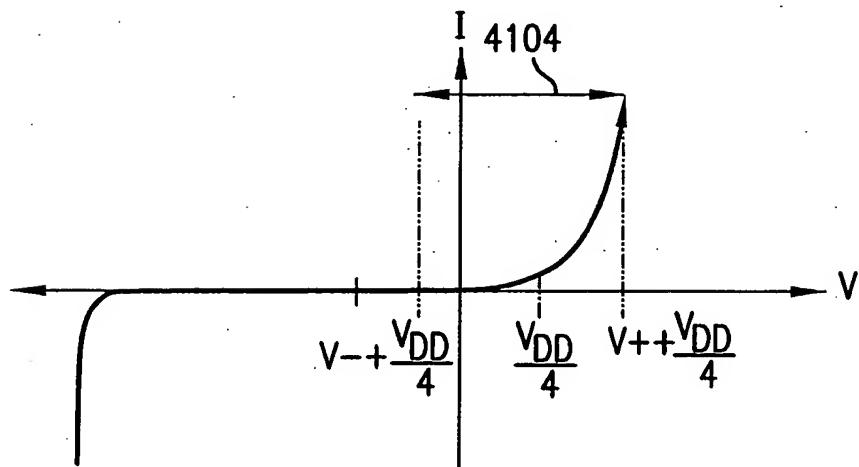


FIG.41B

52/55

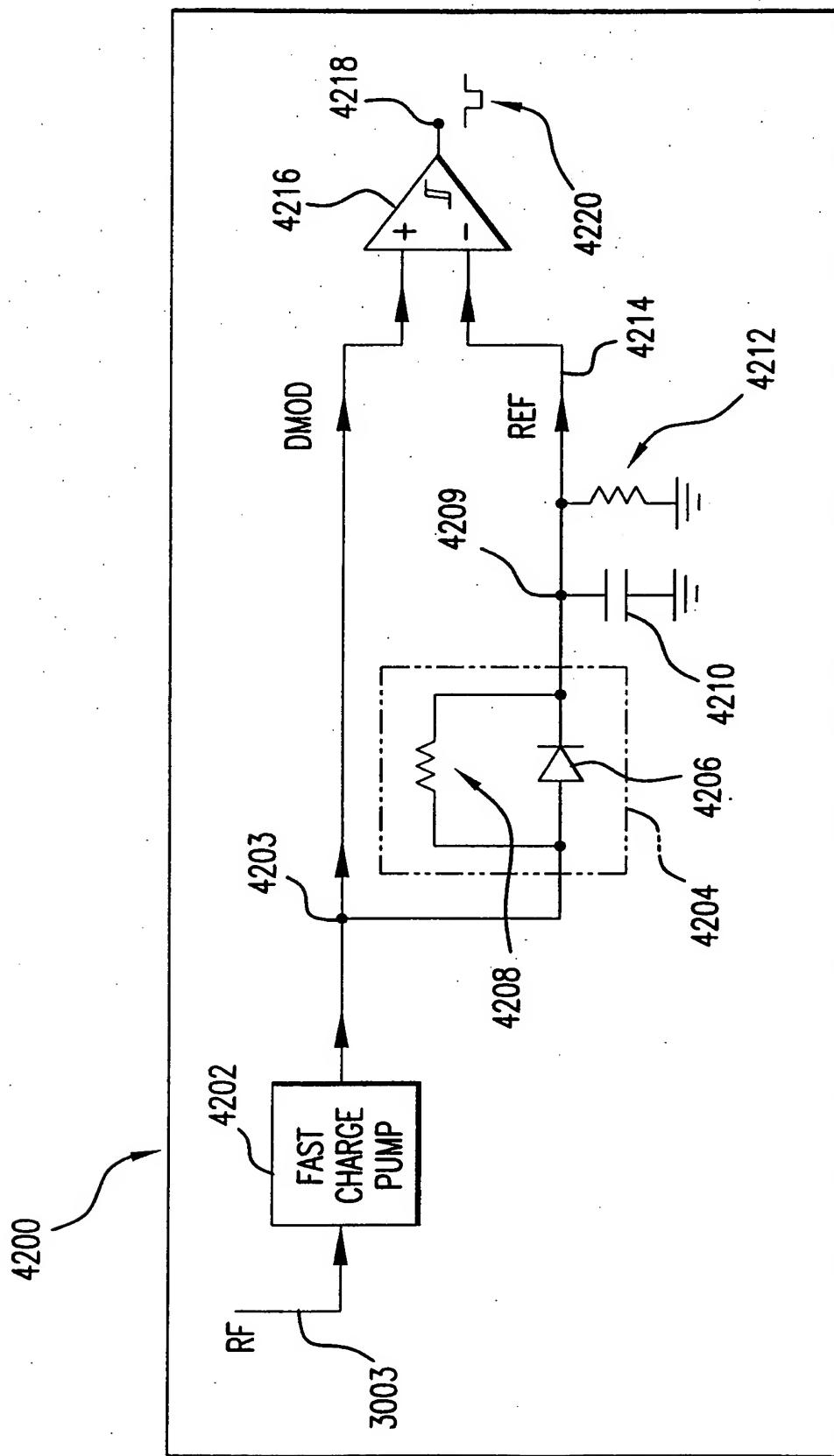


FIG.42

53/55

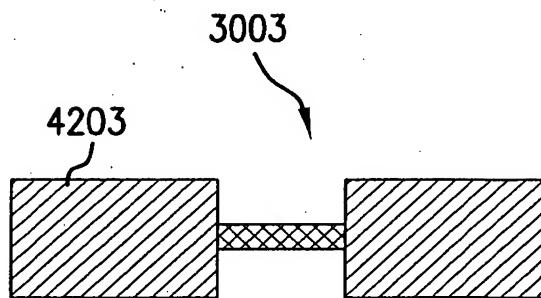


FIG.43A

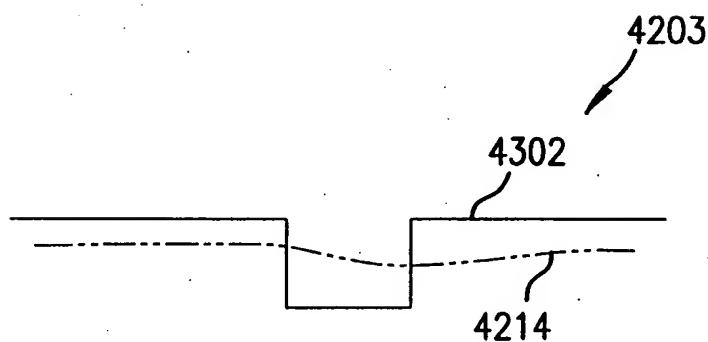


FIG.43B

54/55

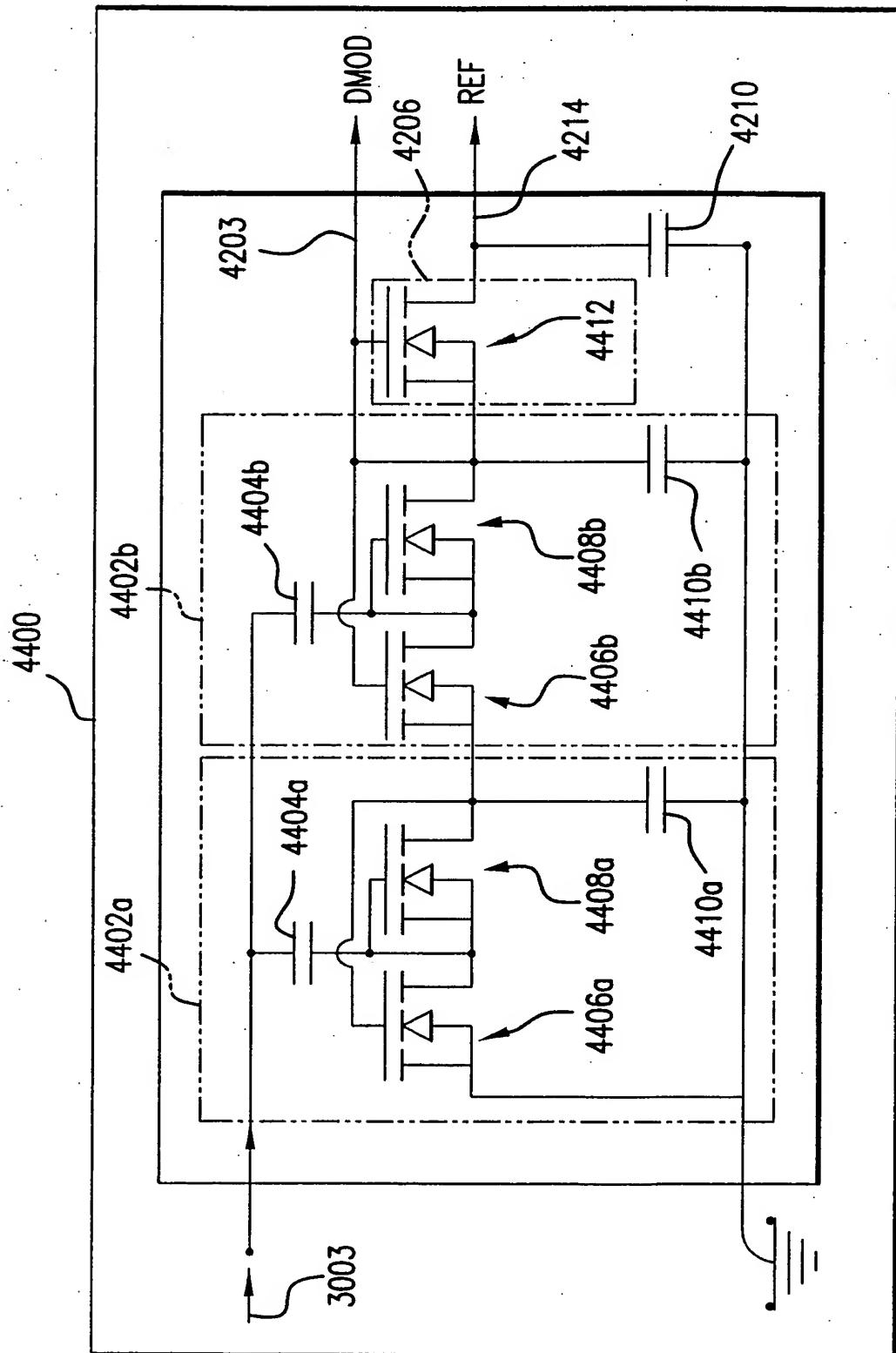


FIG. 44

55/55

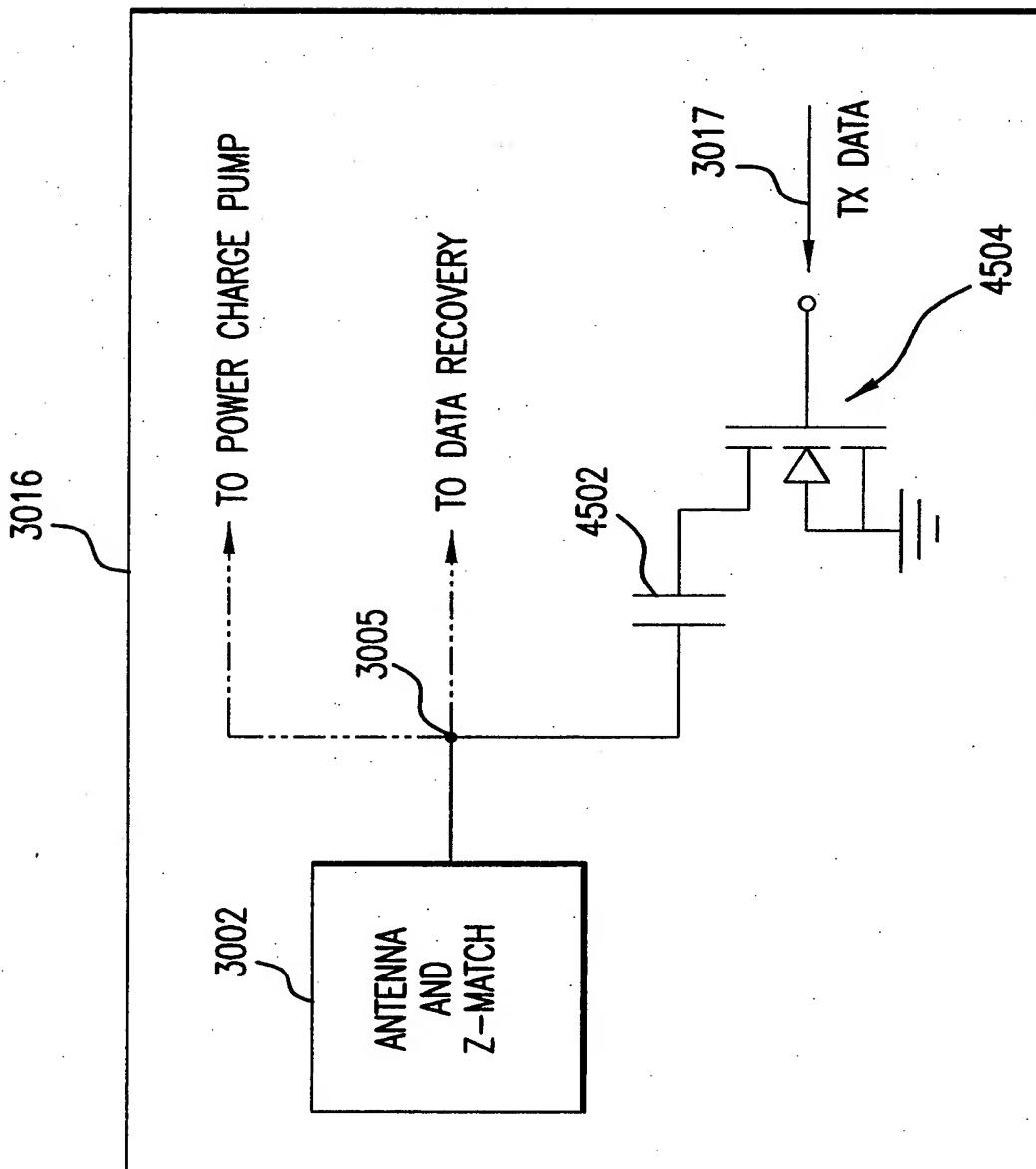


FIG.45